

FIG.1

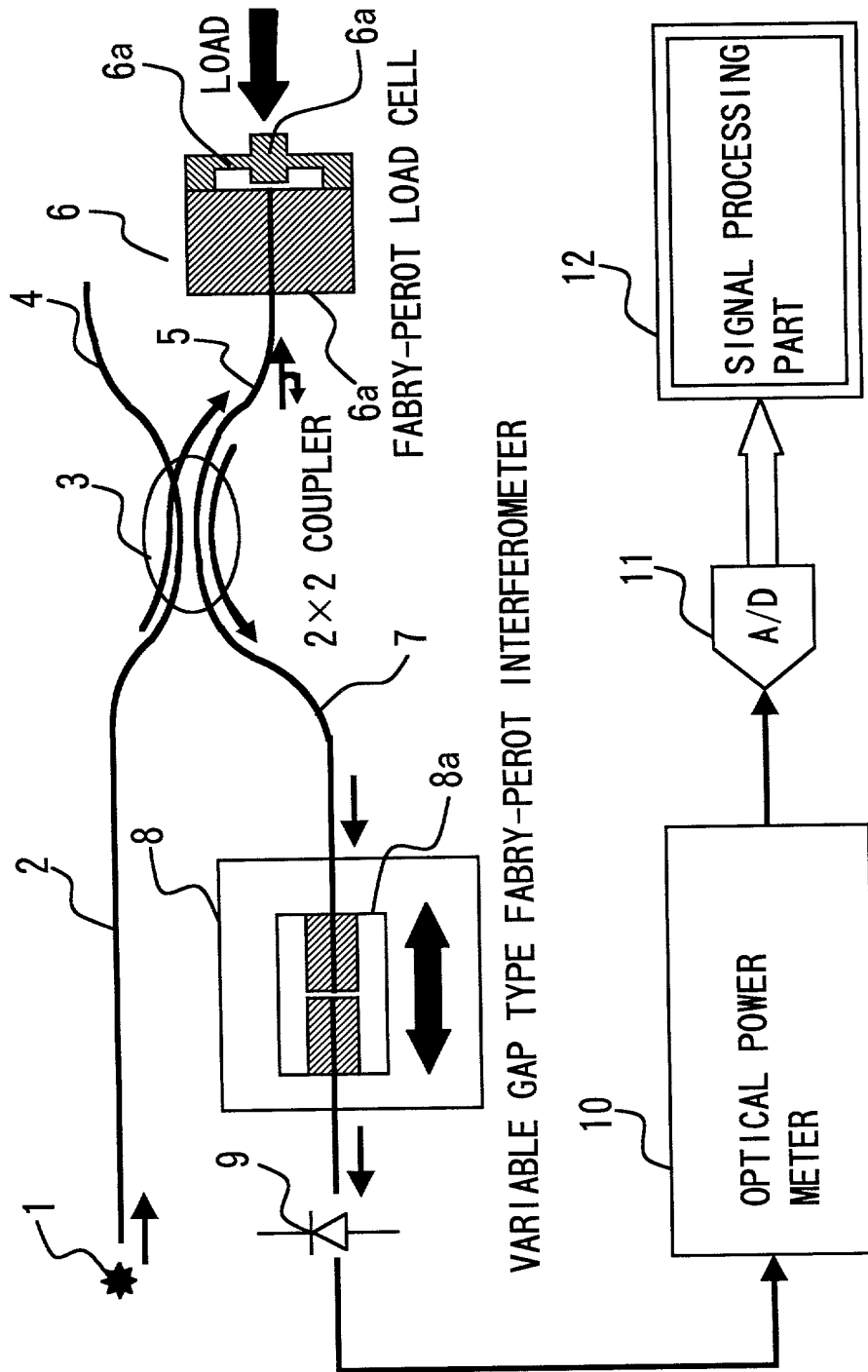


FIG.2

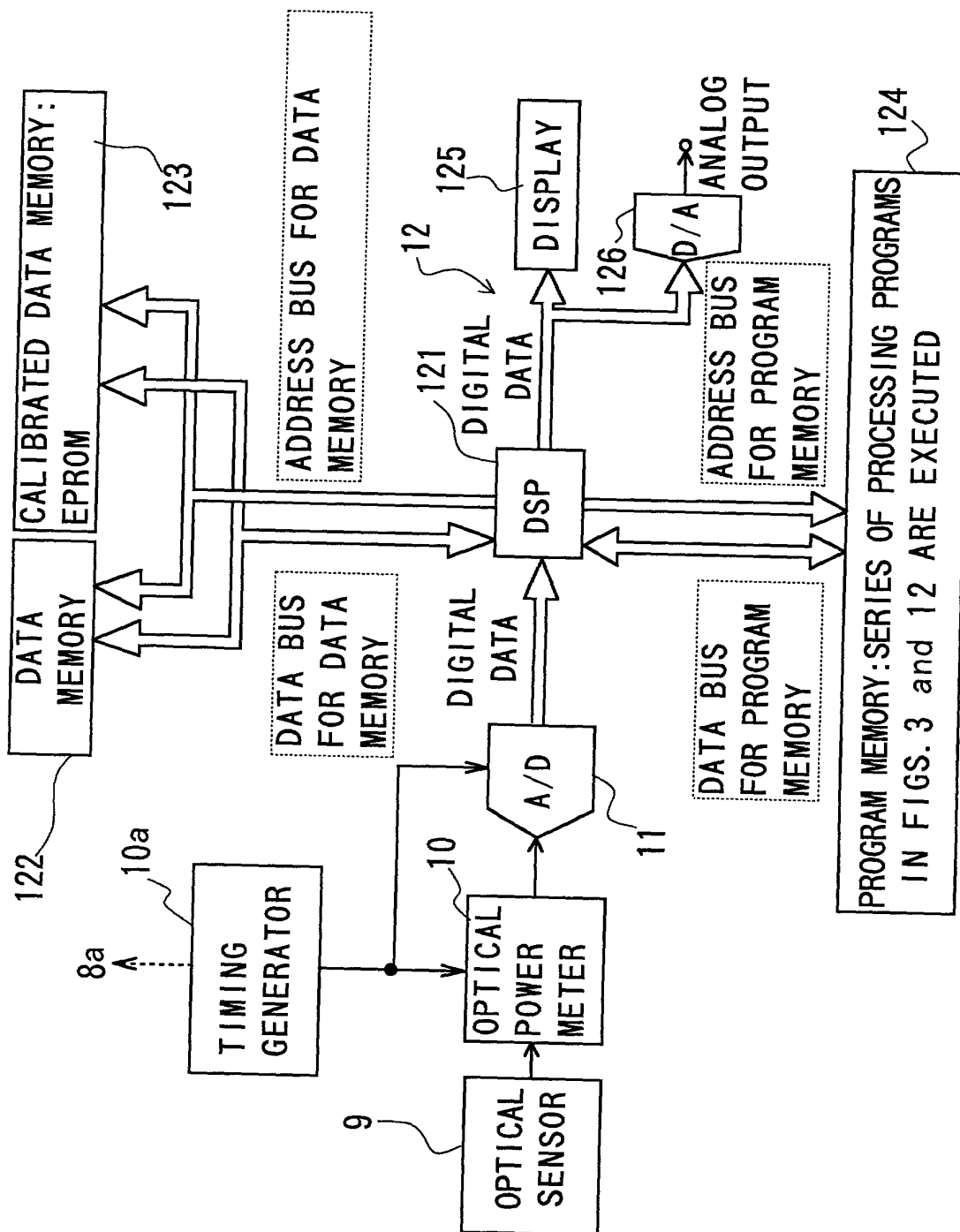
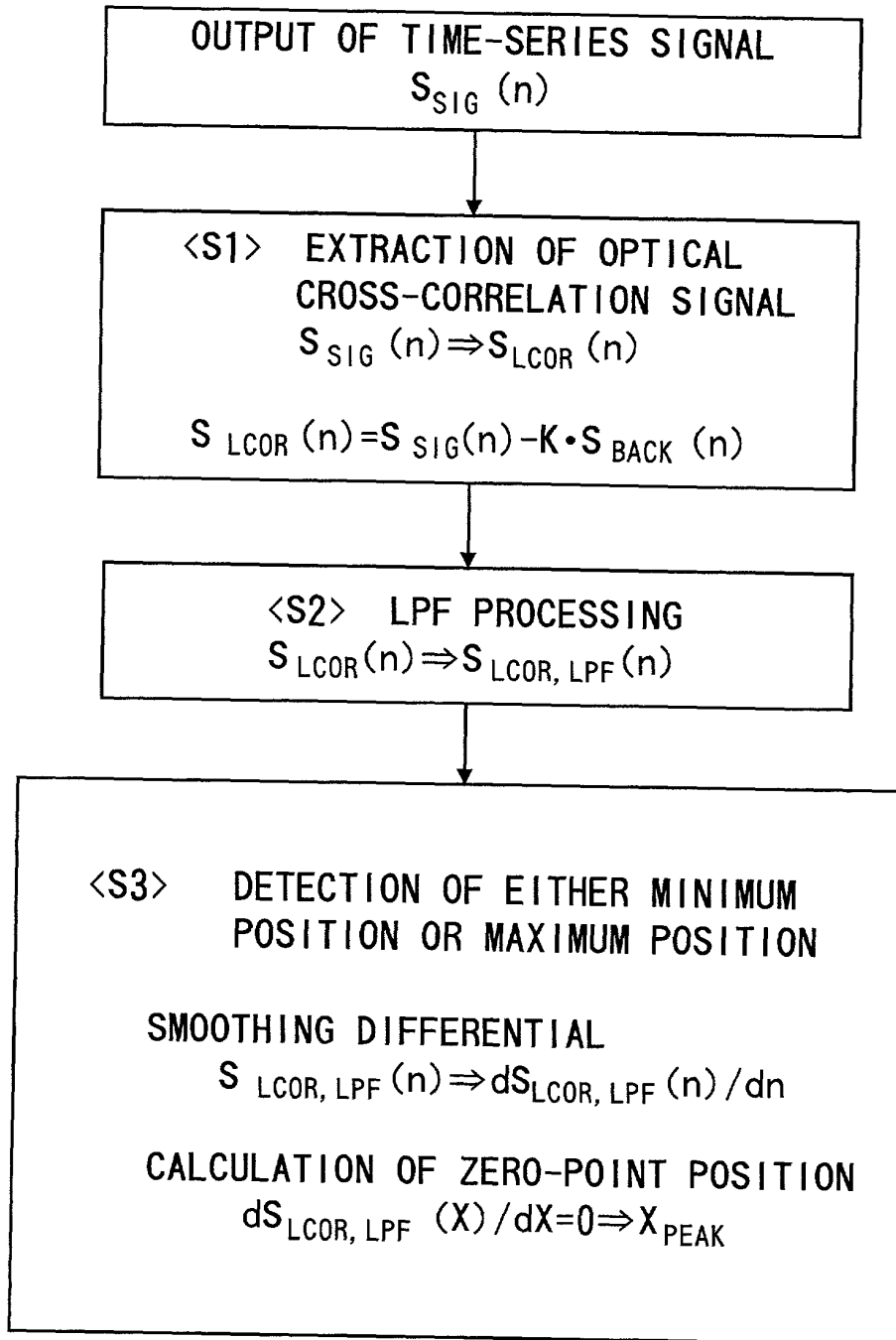


FIG. 3



095545-09194

FIG. 4

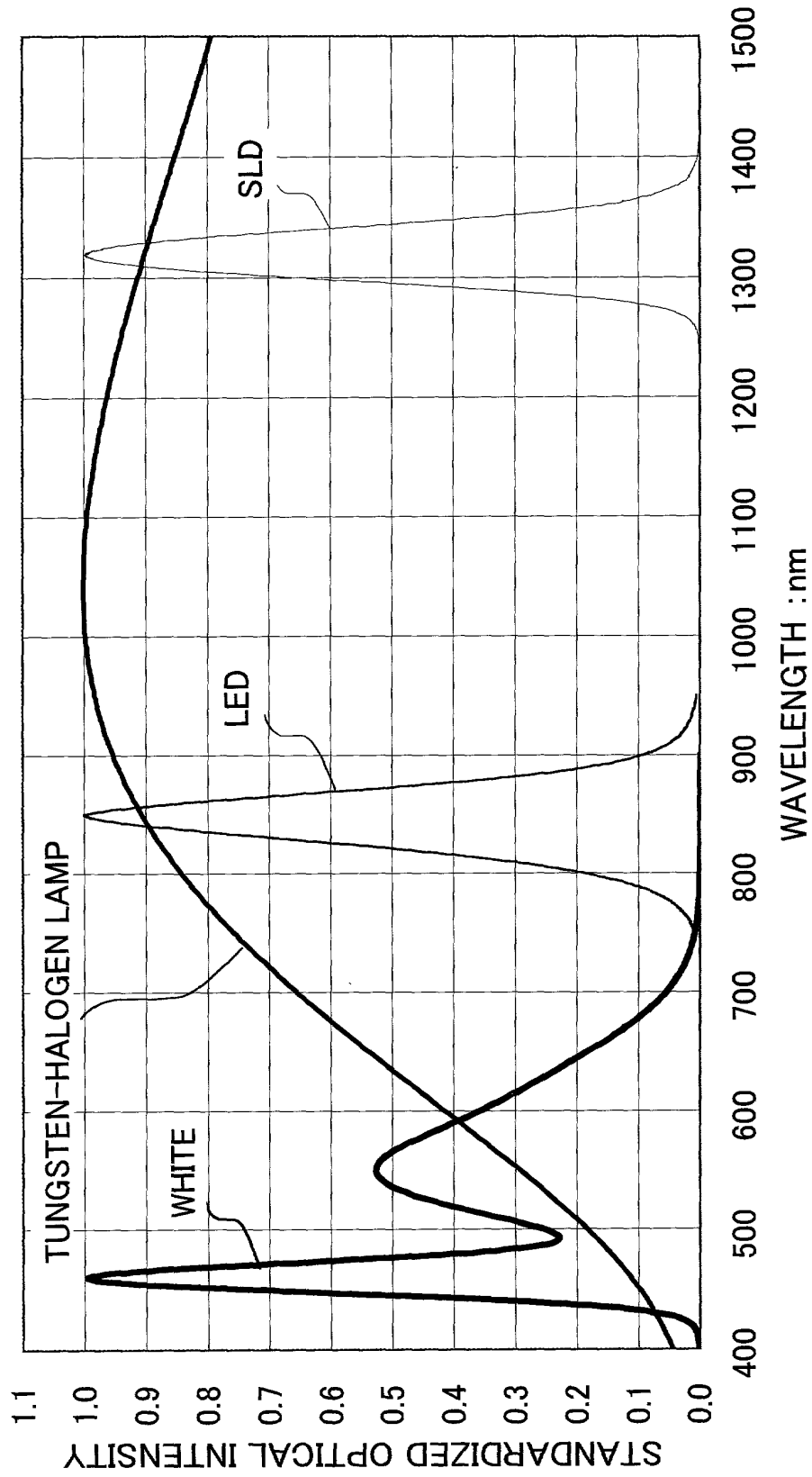


FIG. 5A

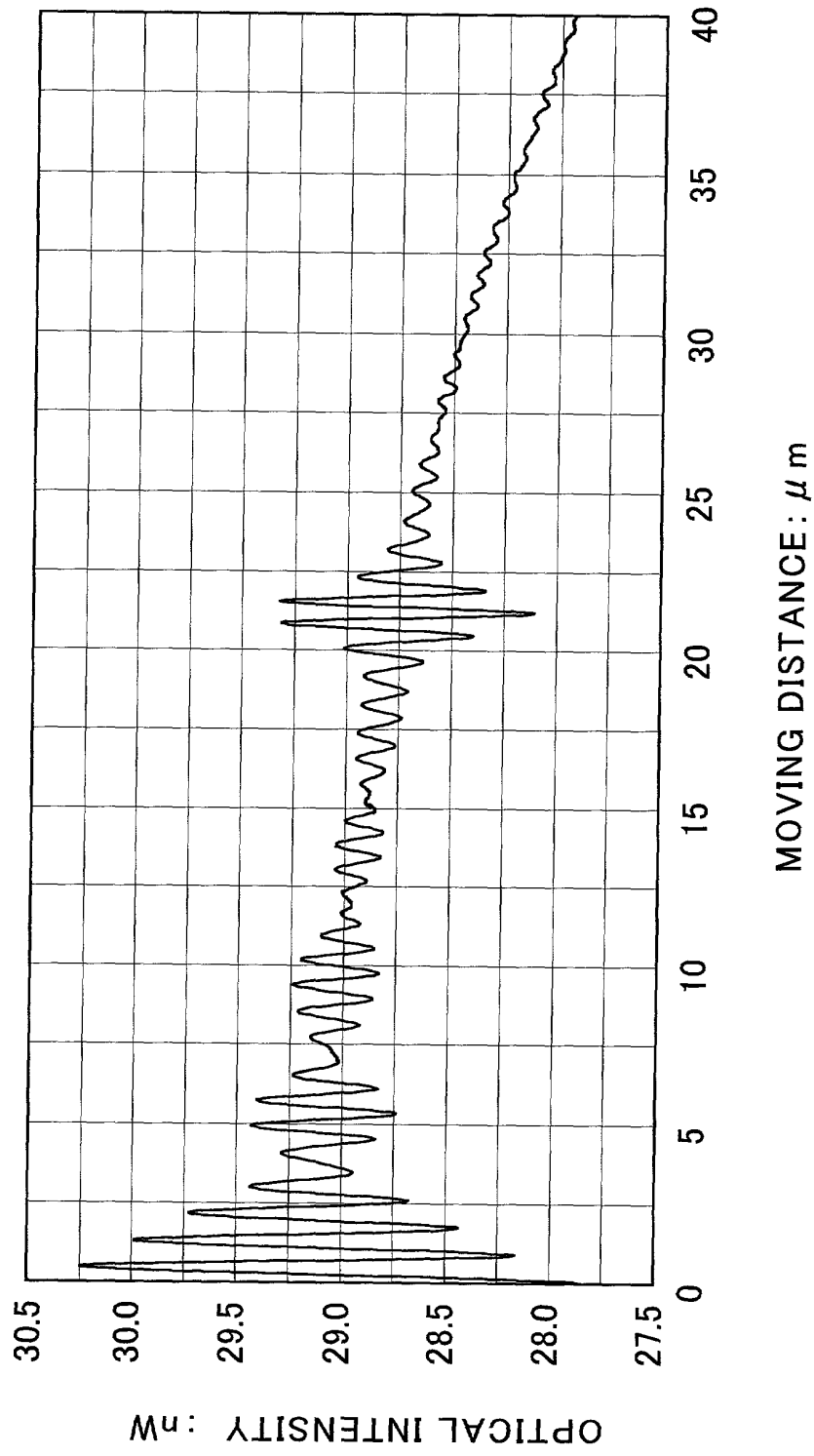


FIG. 5B

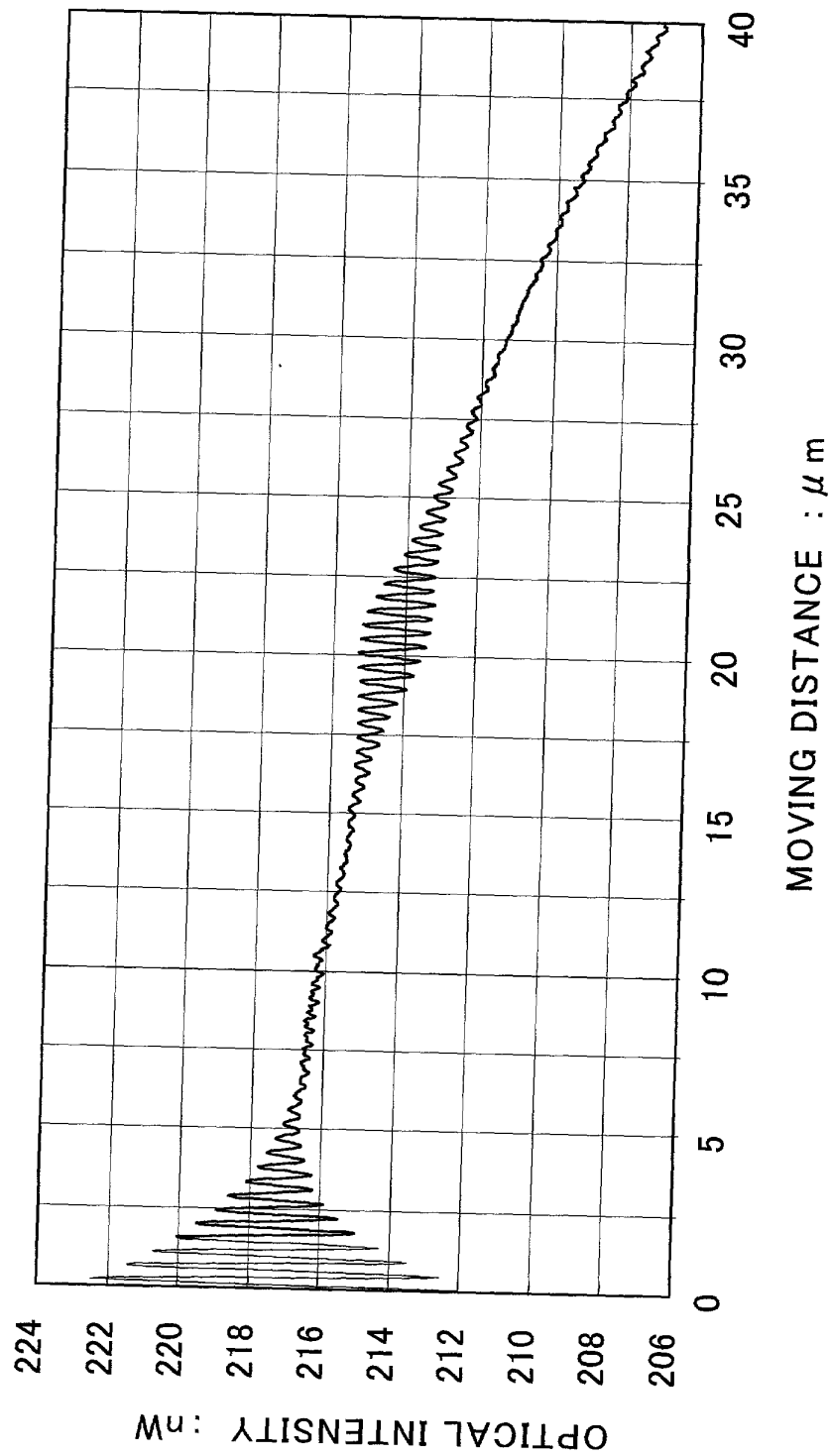


FIG. 5C

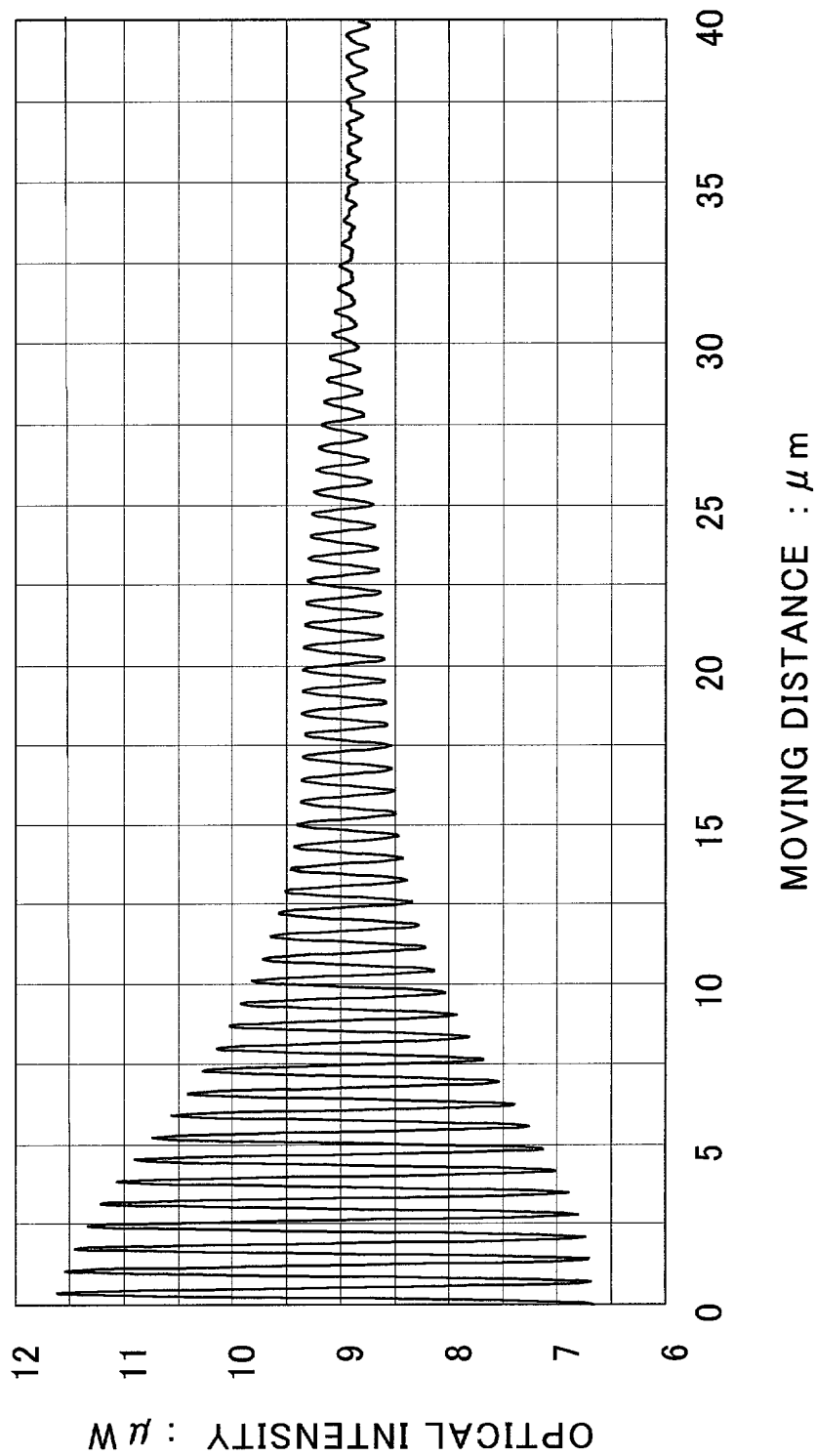


FIG. 6A

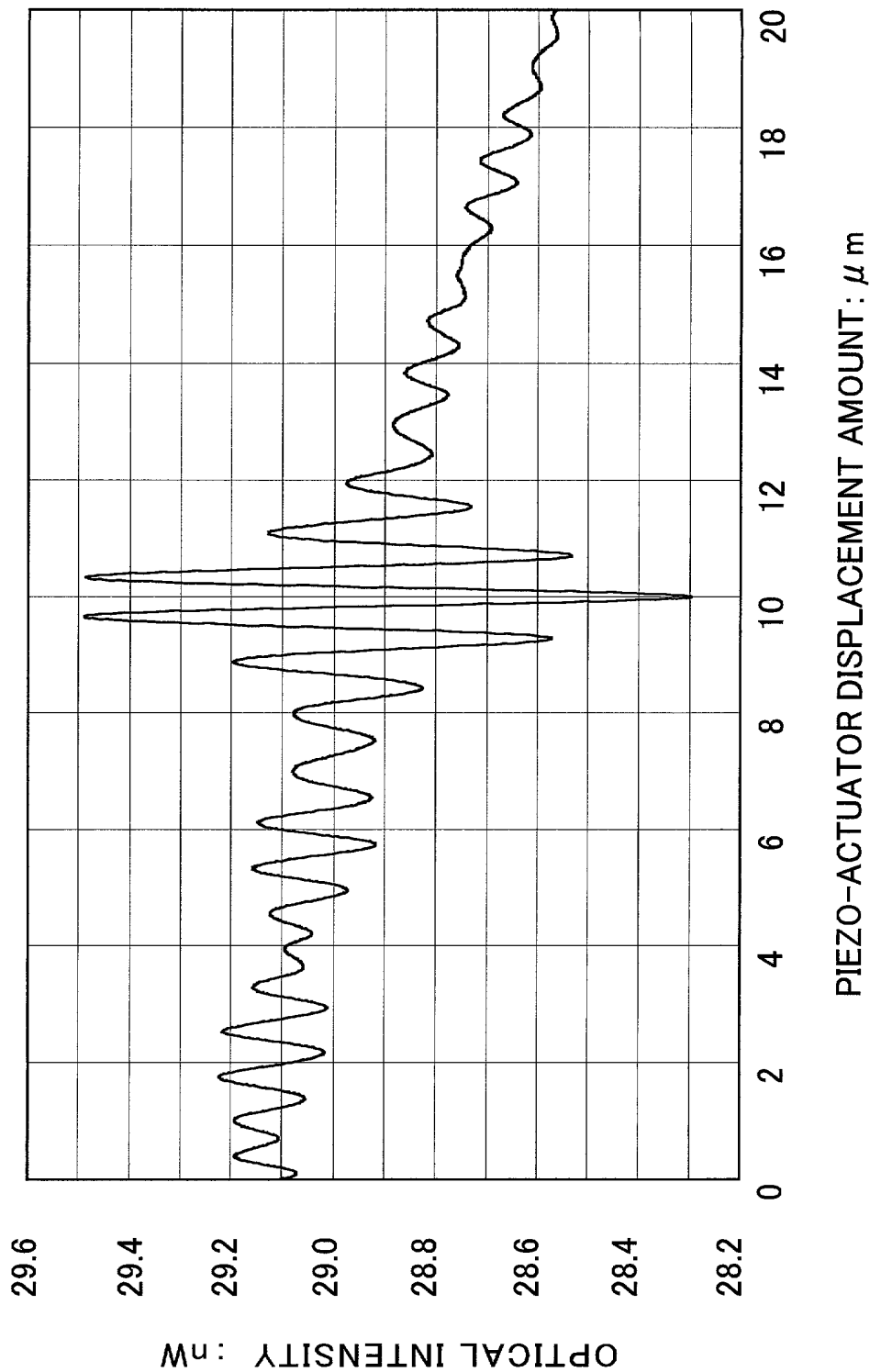


FIG. 6B

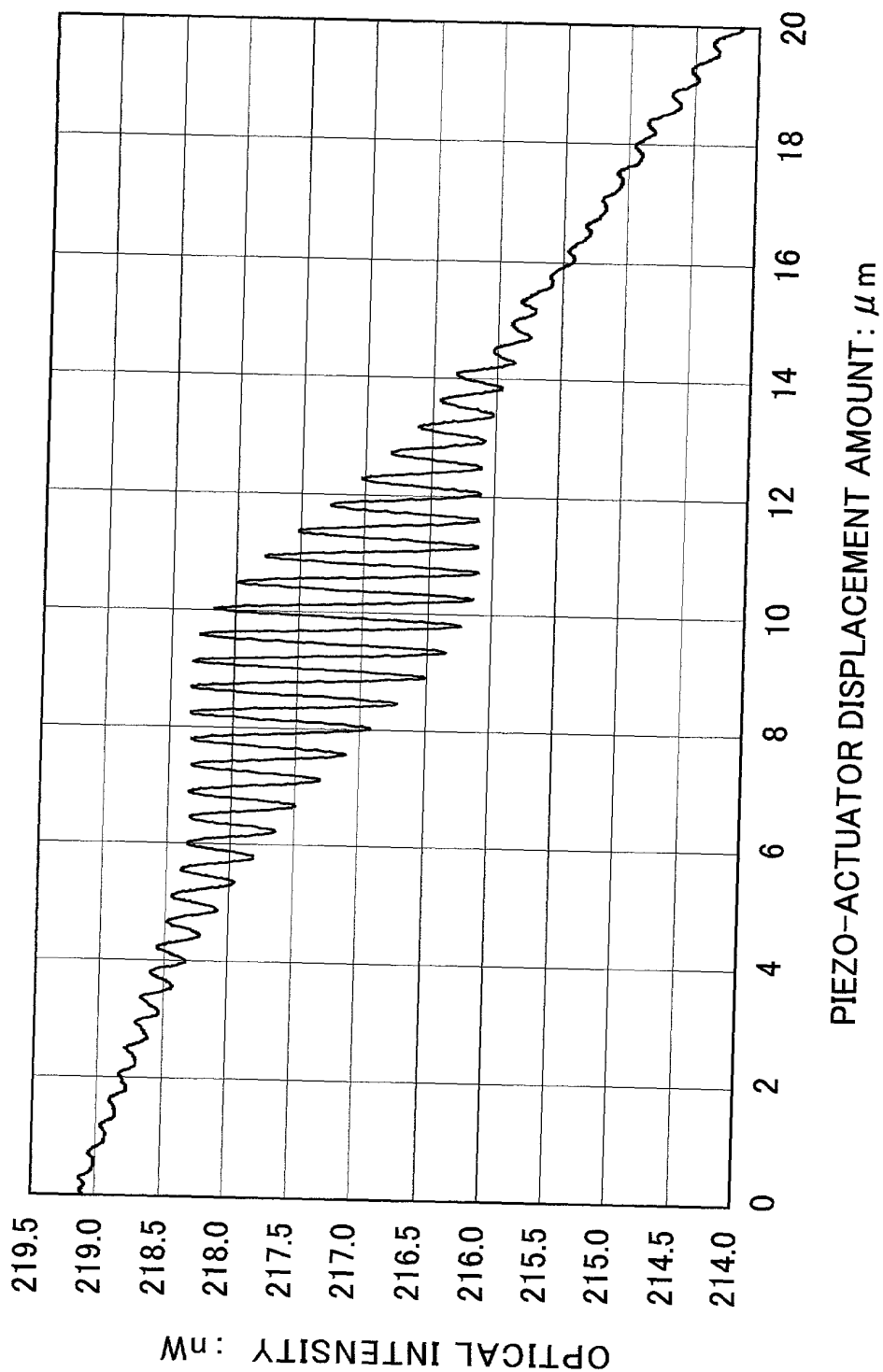


FIG. 6C

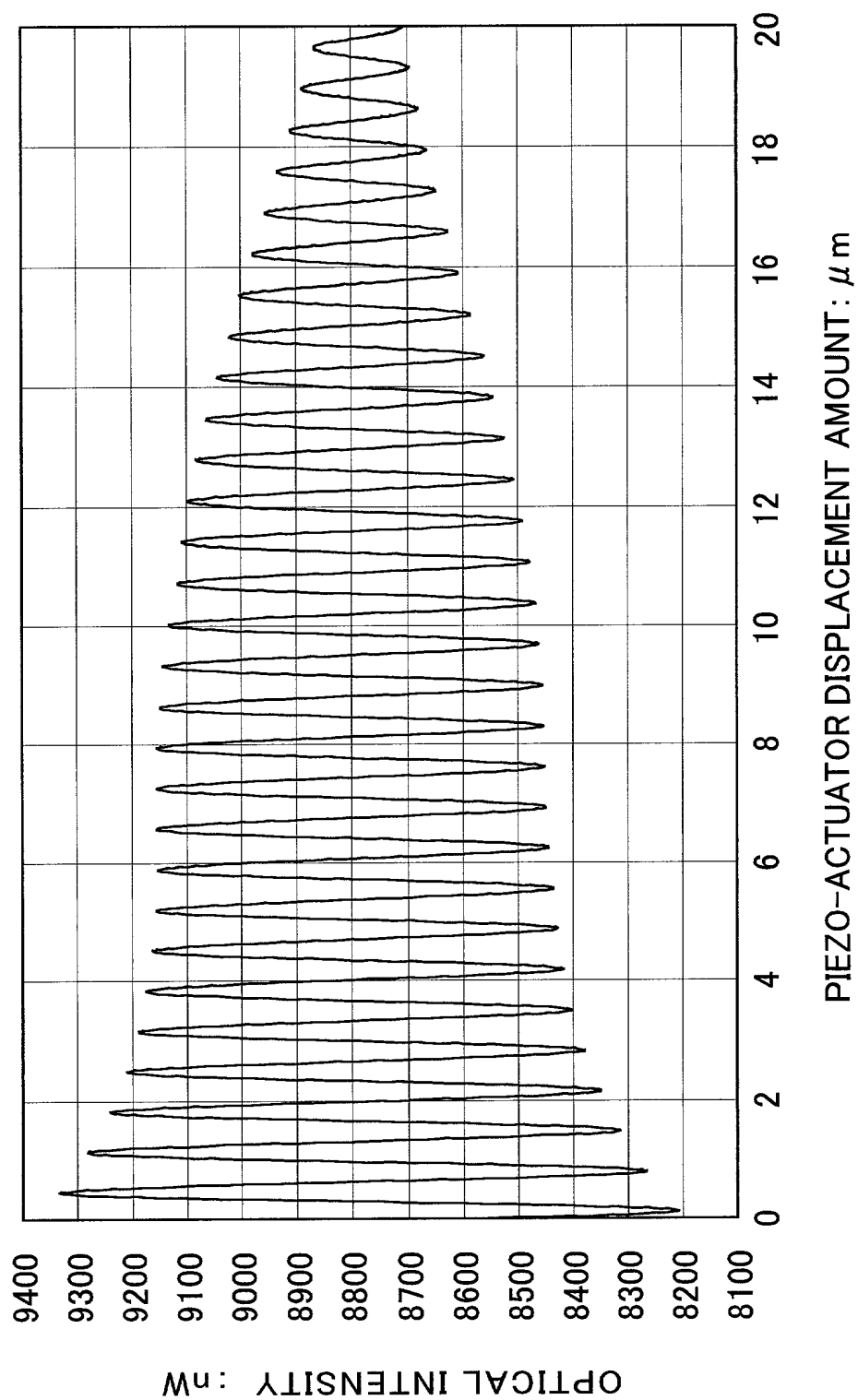


FIG. 7A

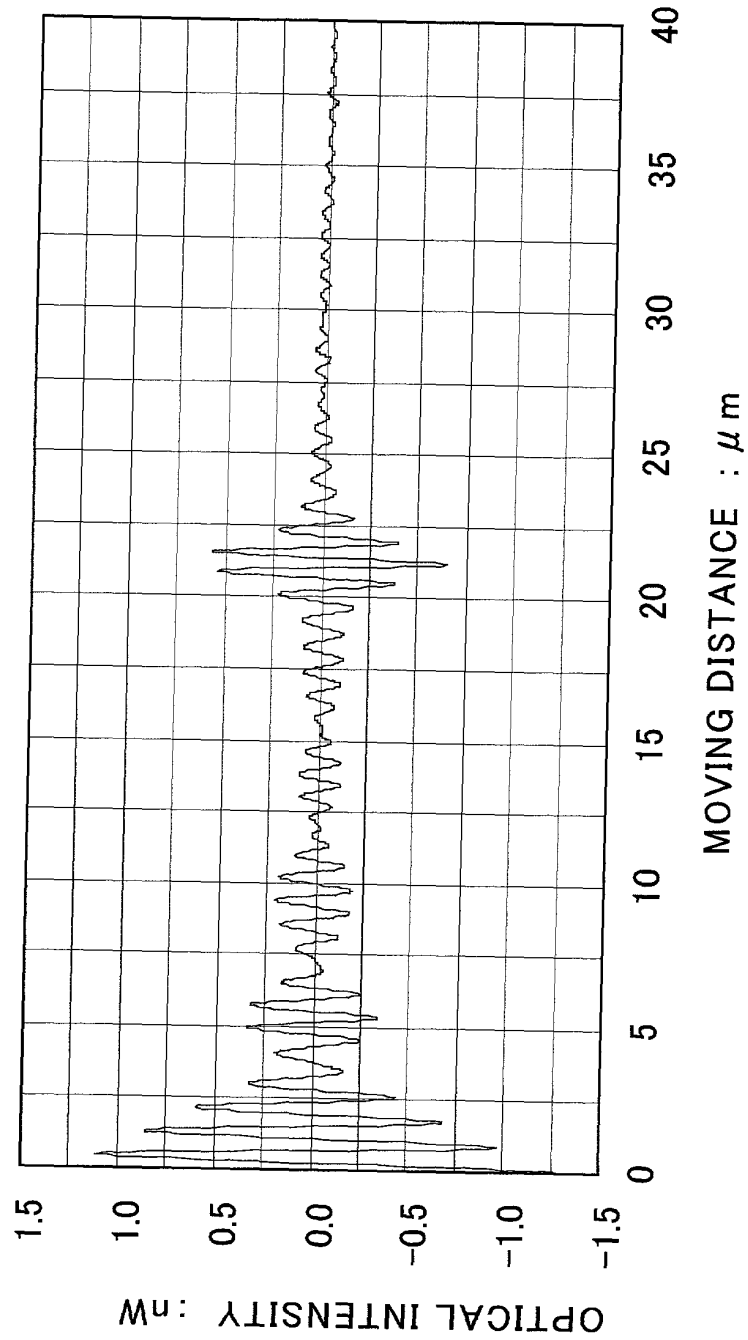


FIG. 7B

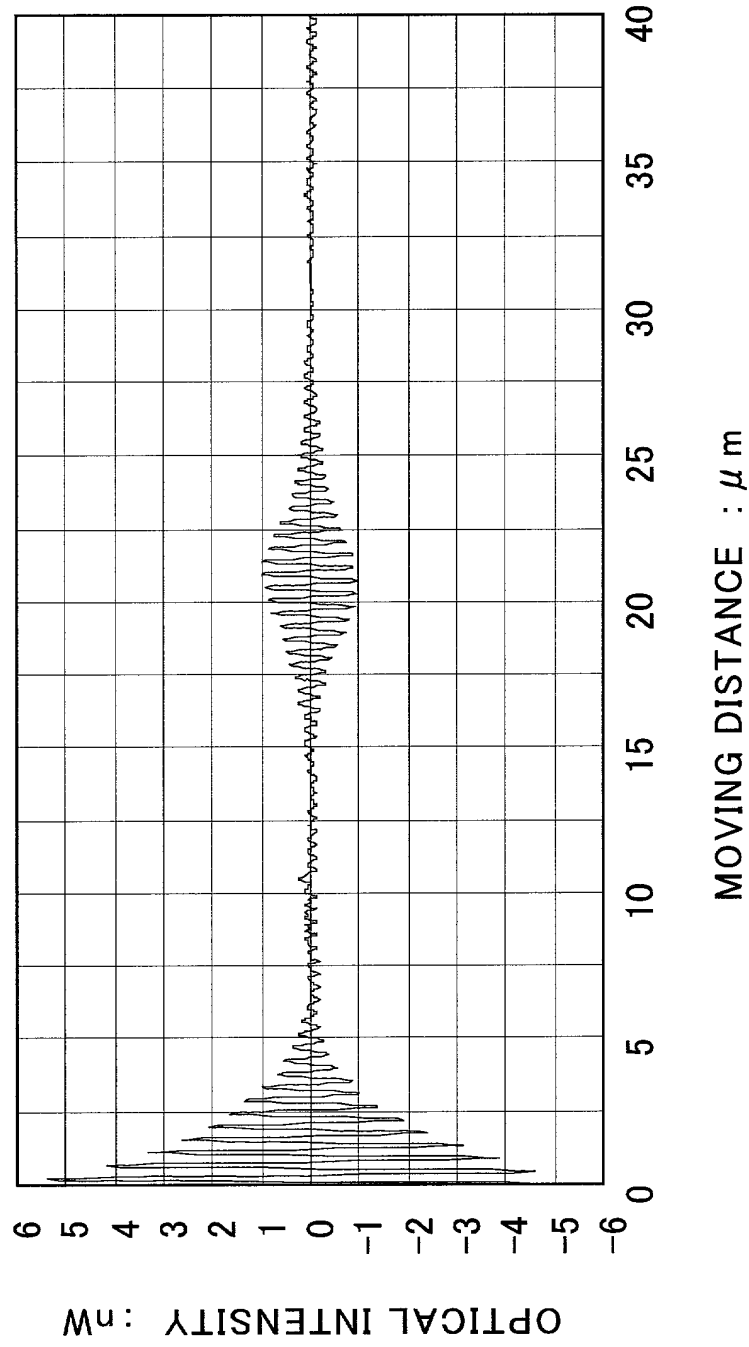


FIG. 7C

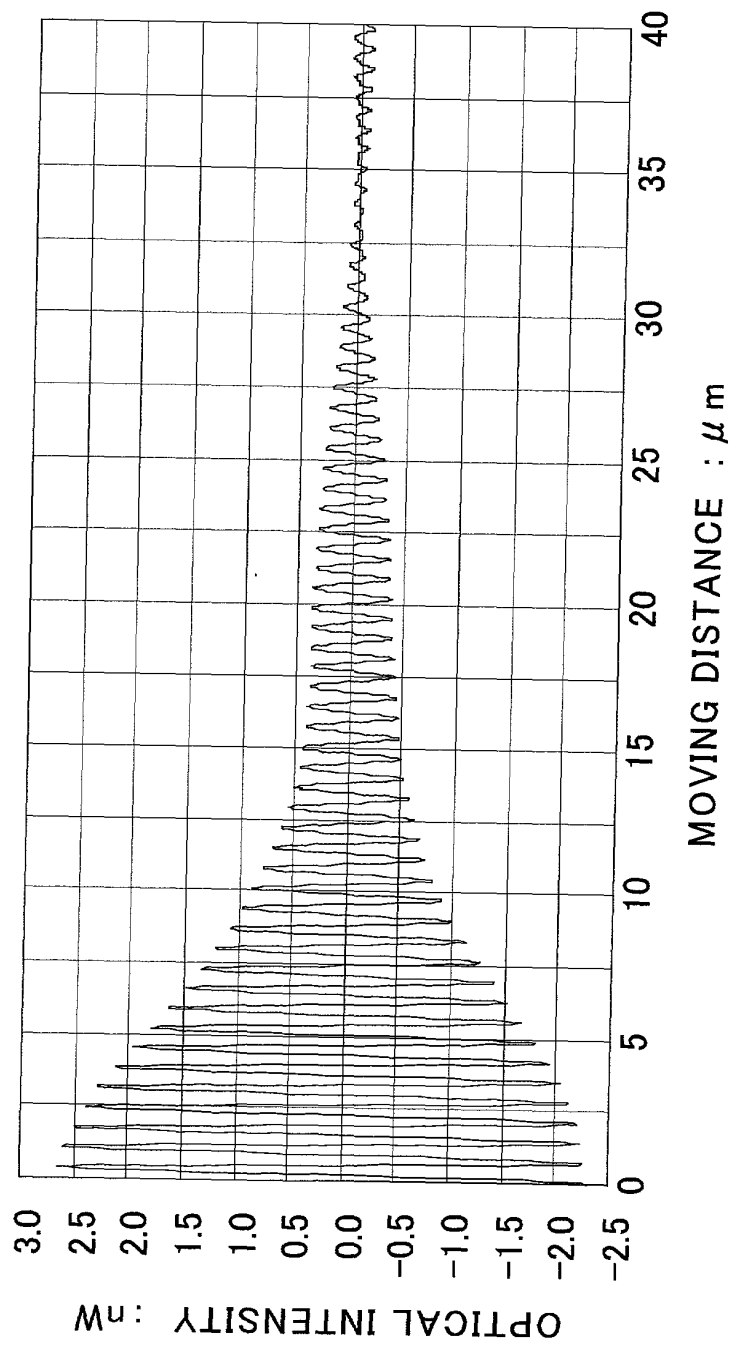


FIG. 8A

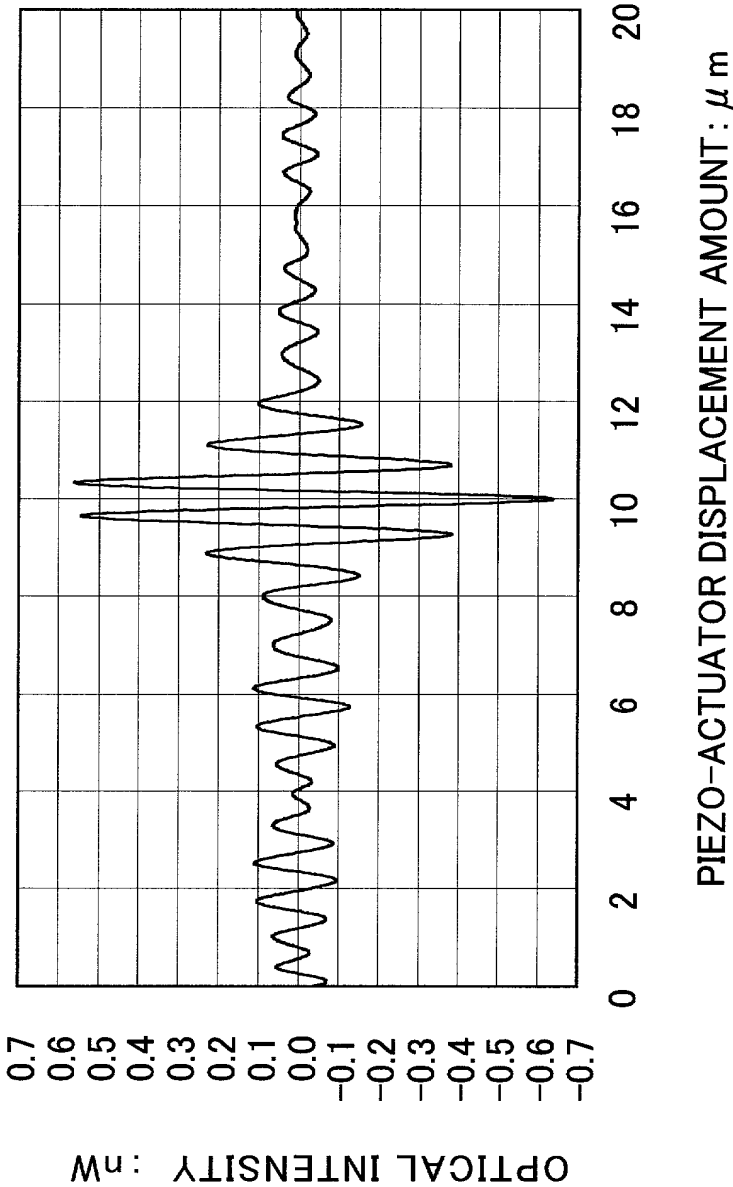


FIG. 8B

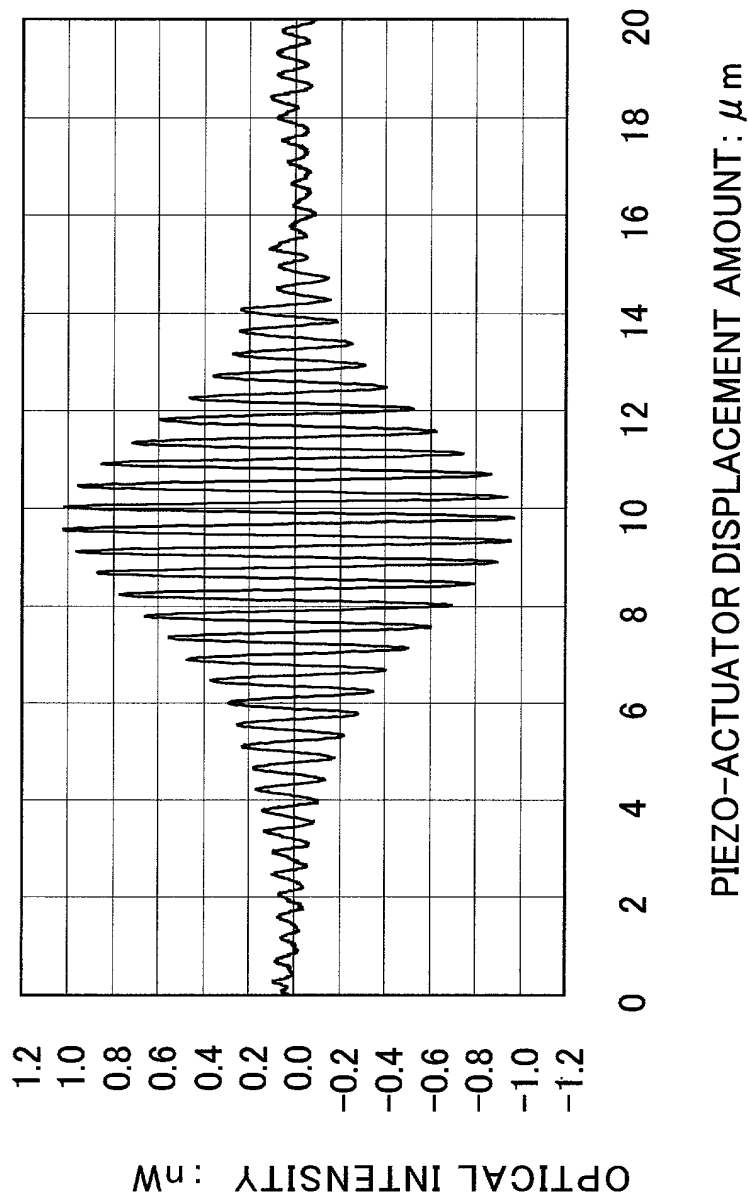


FIG. 8C

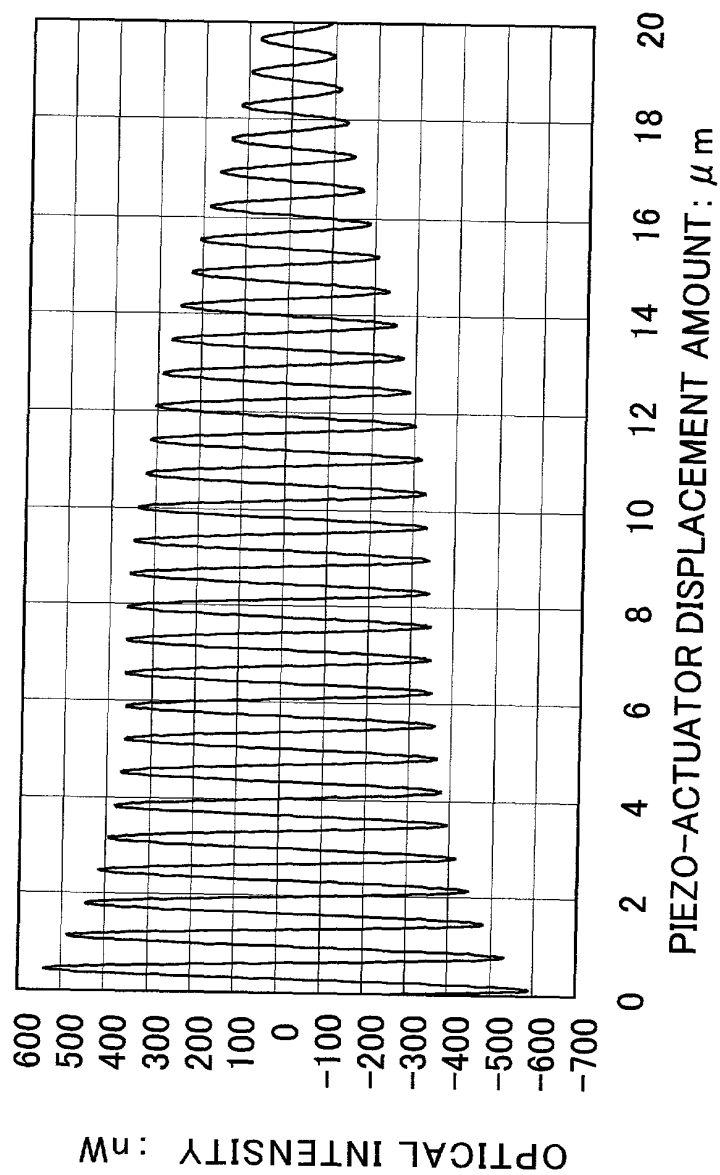


FIG. 9A

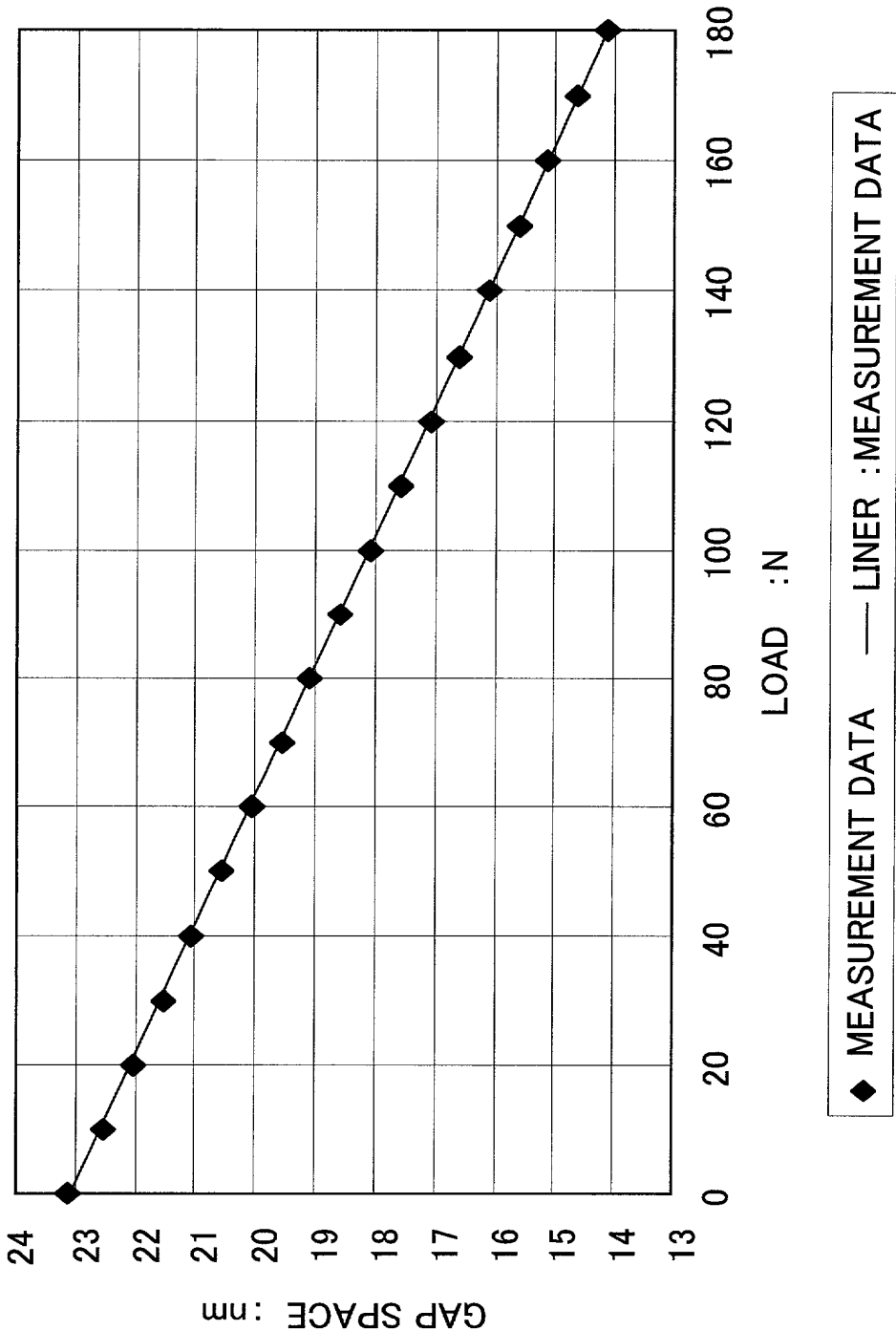


FIG. 9B

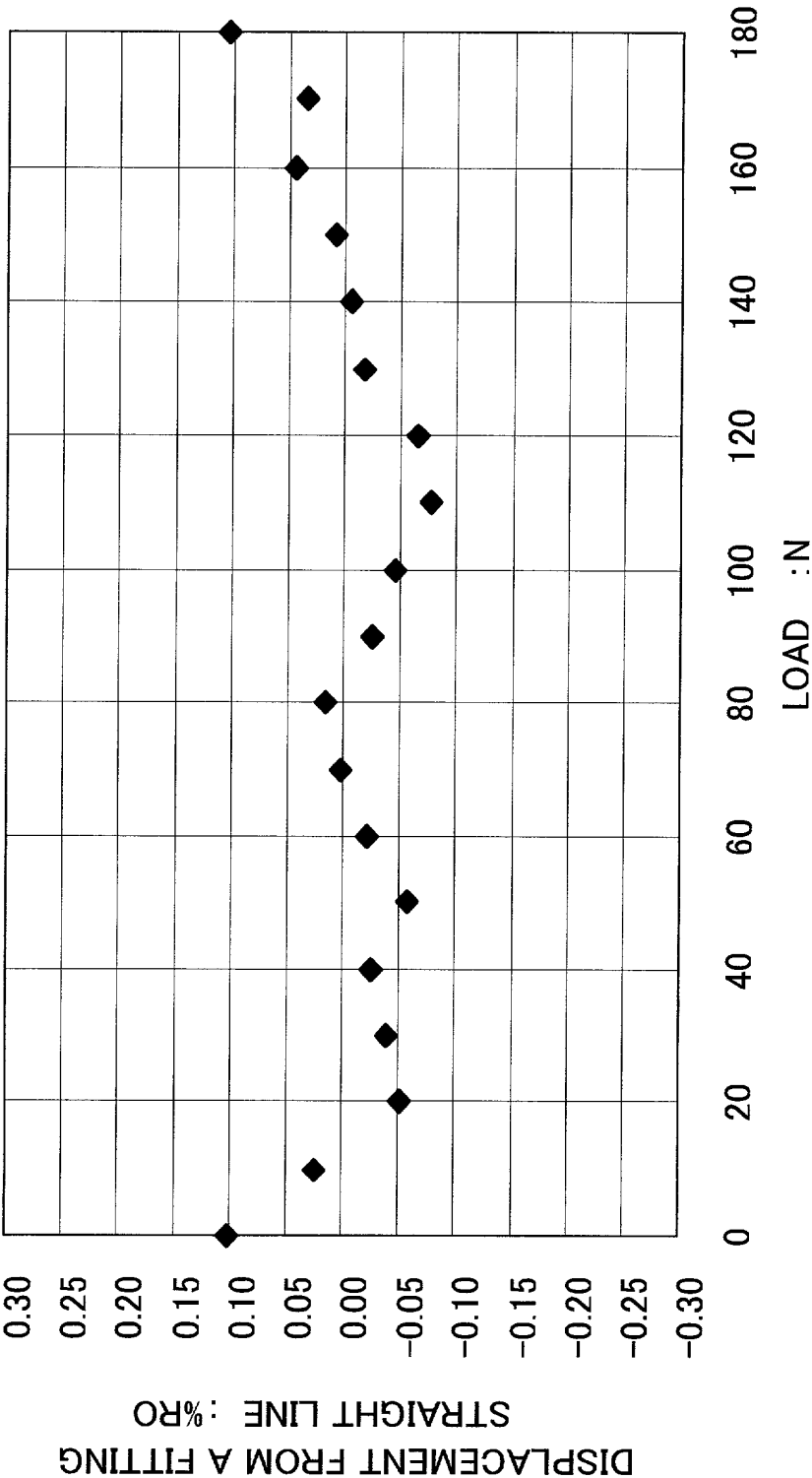


FIG. 10

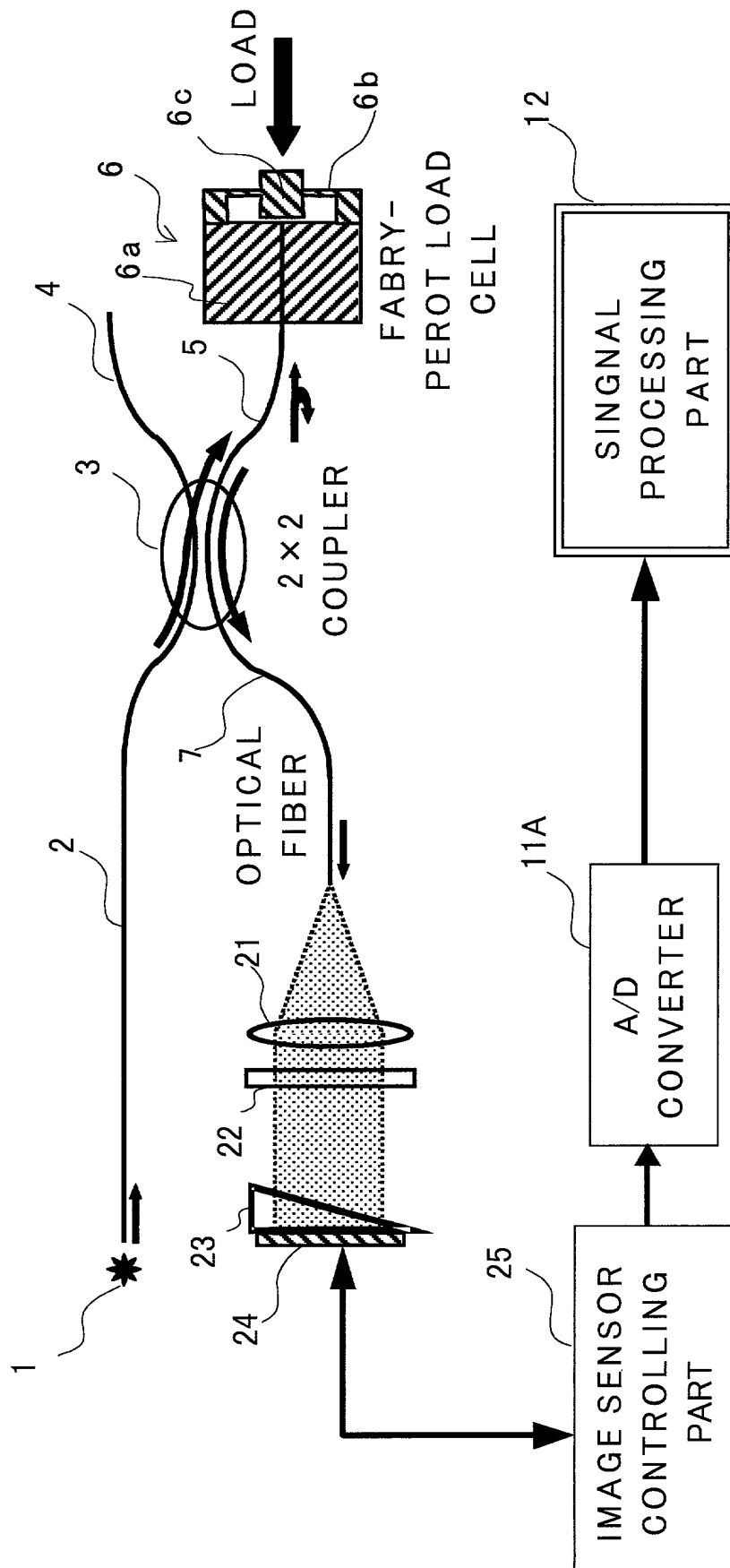


FIG. 11

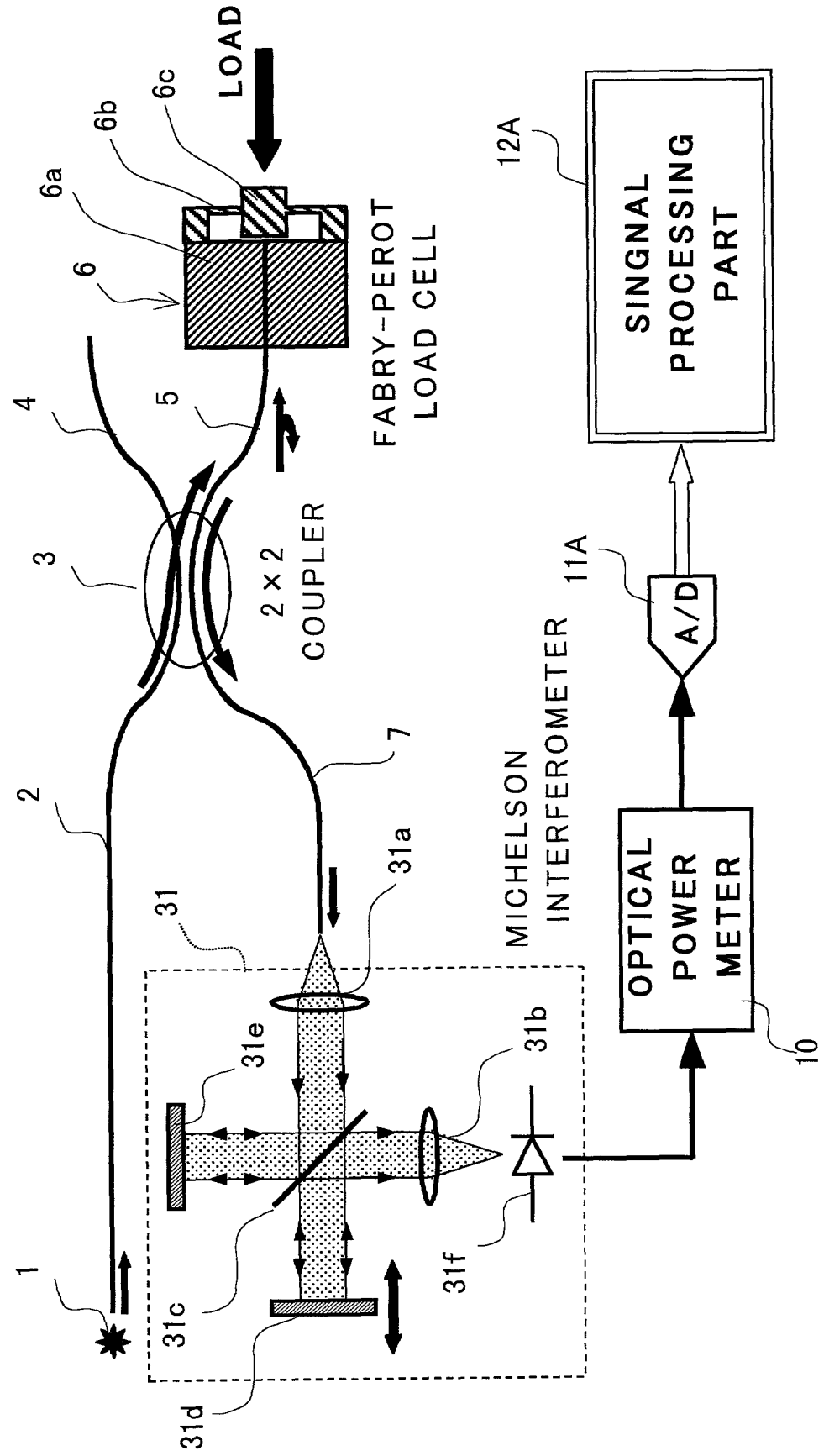


FIG. 12

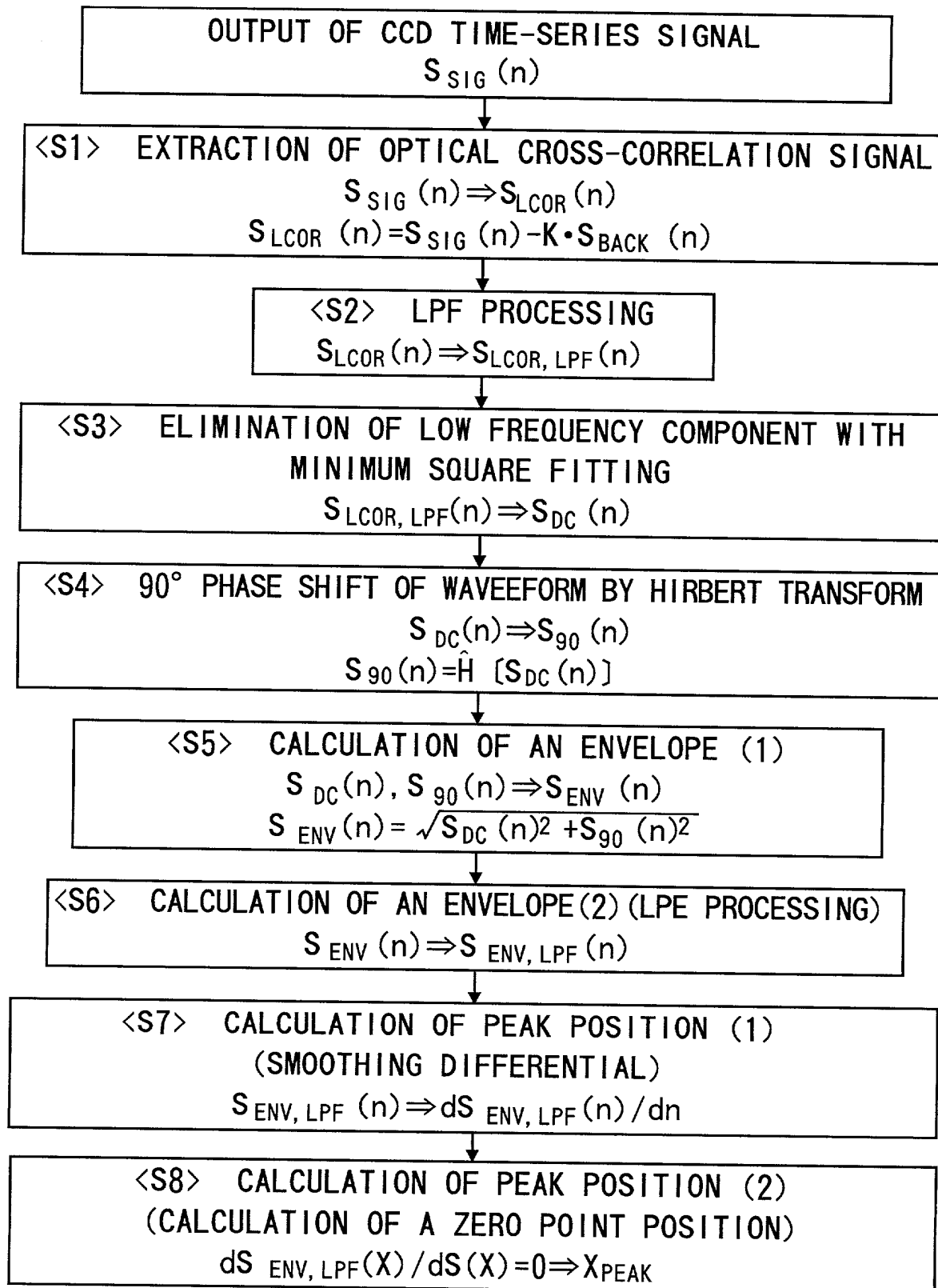


FIG.13

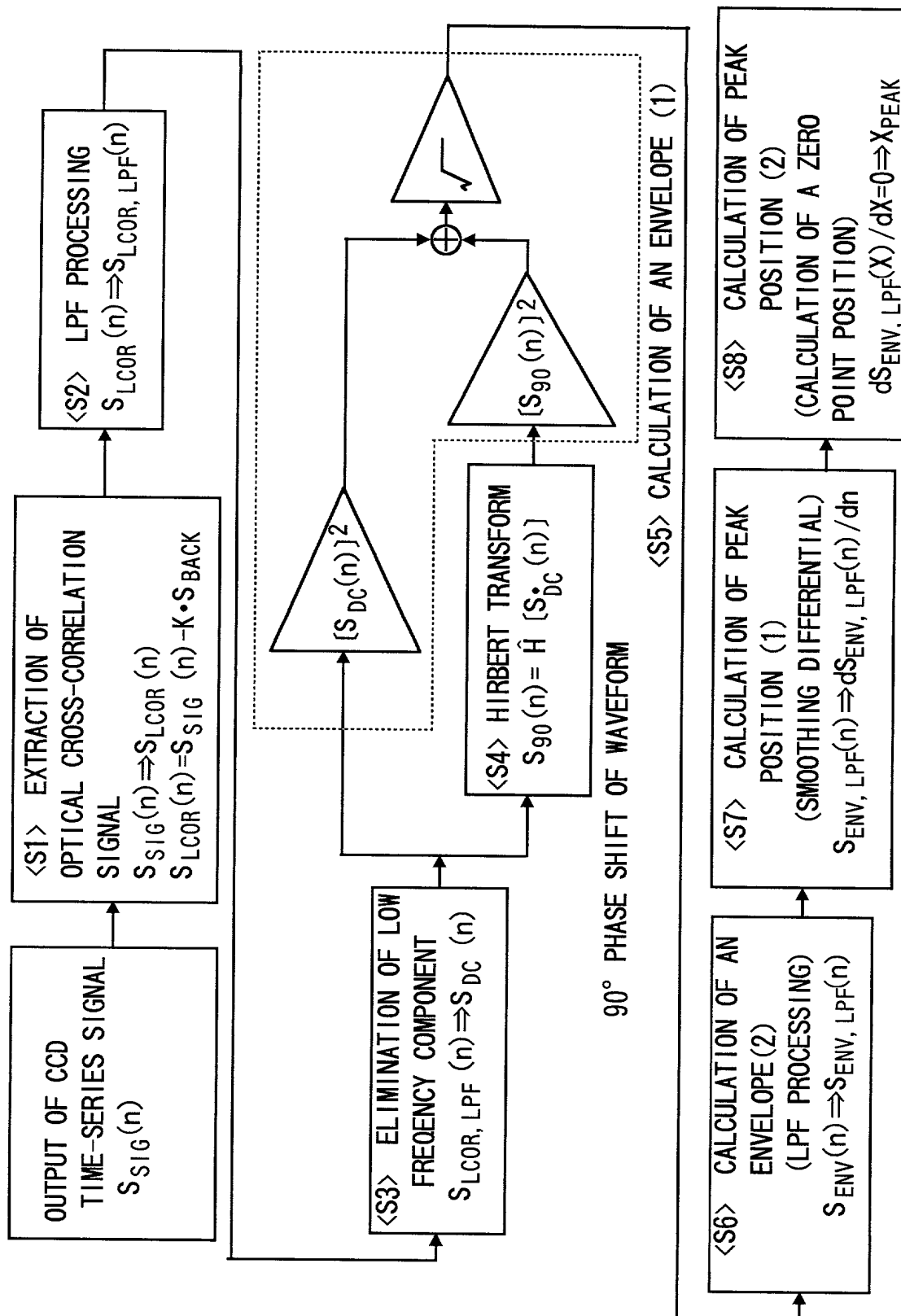


FIG. 14

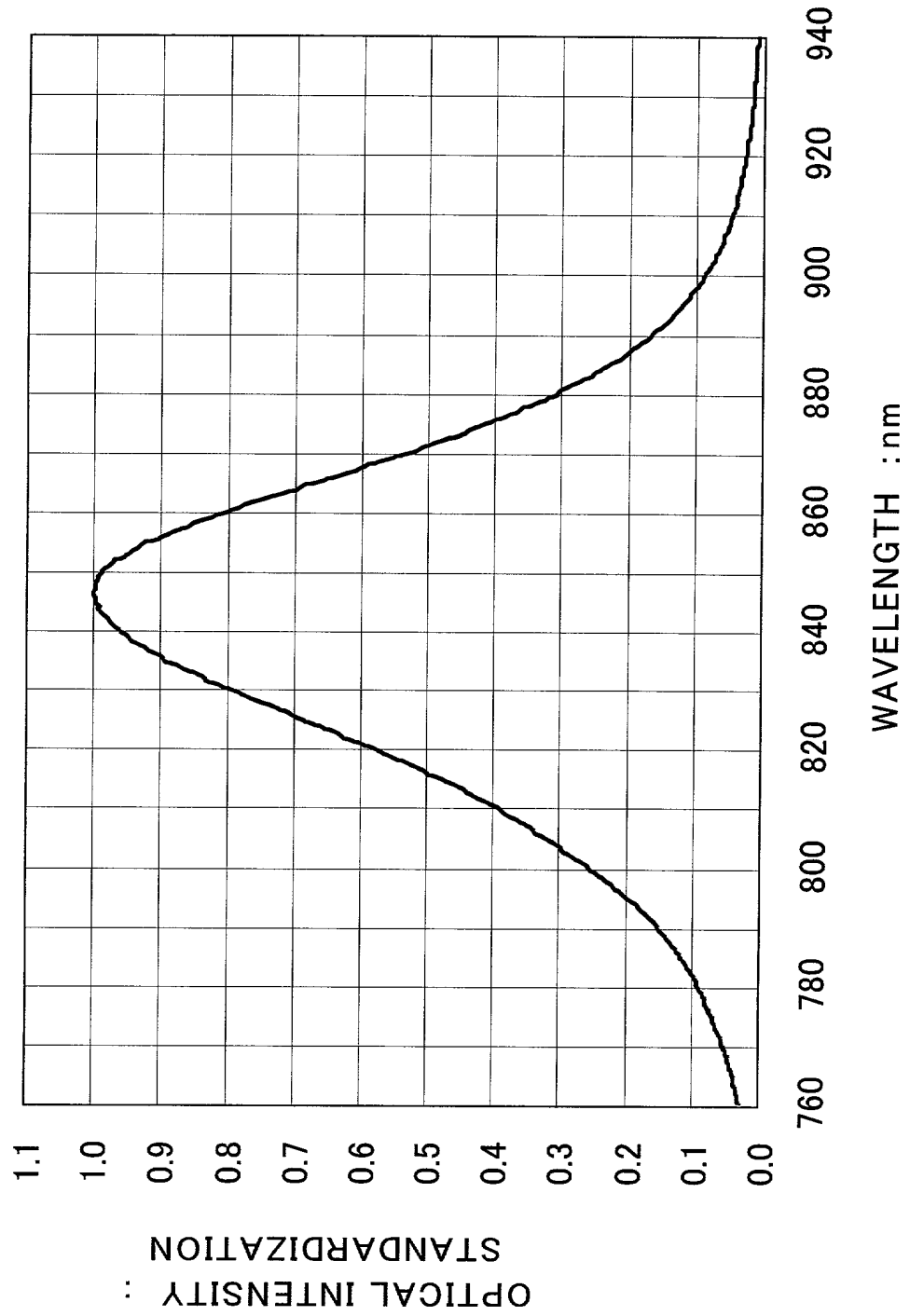


FIG. 15

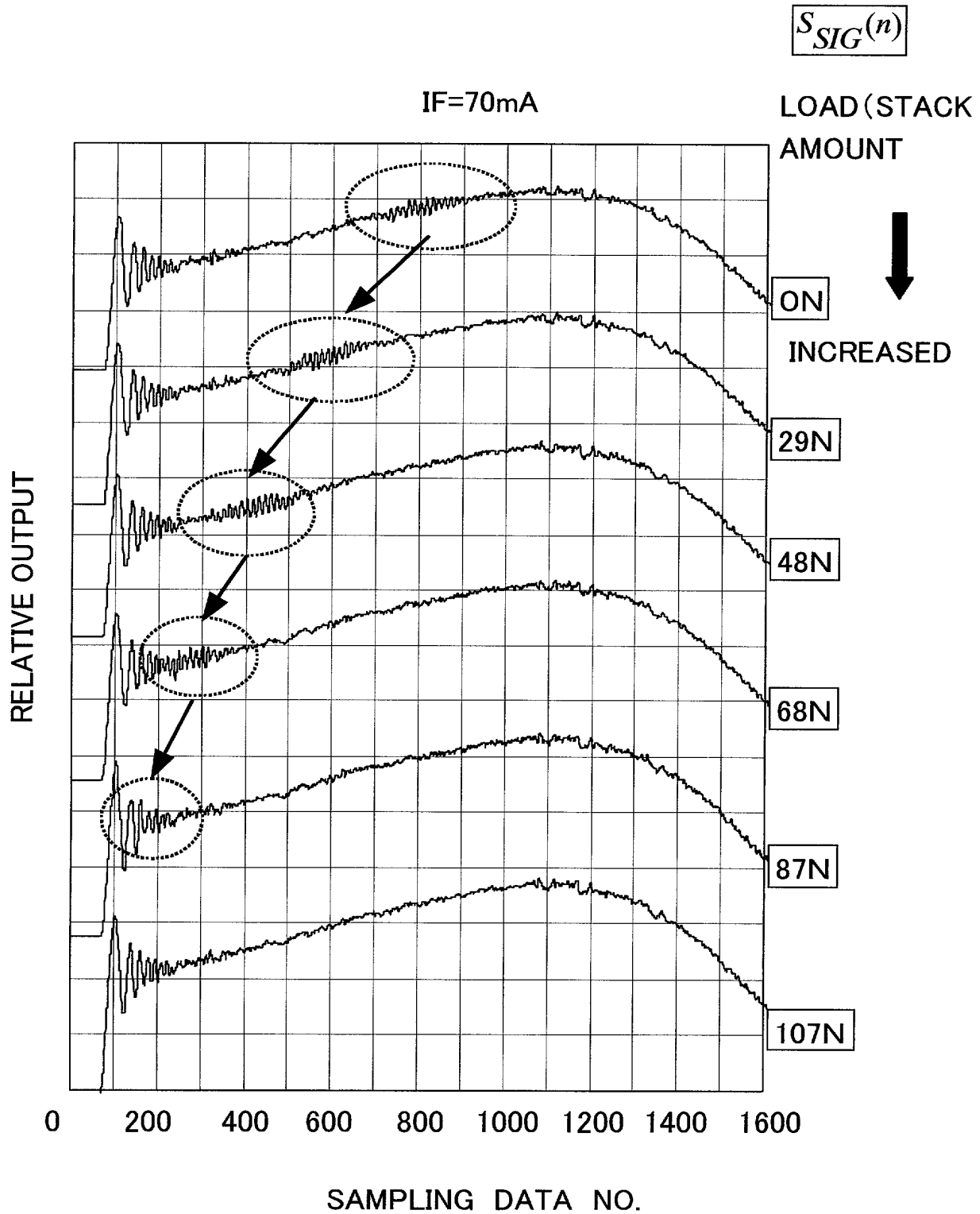


FIG. 16
WAVEFORM DATA BY CCD LINEAR IMAGE SENSOR

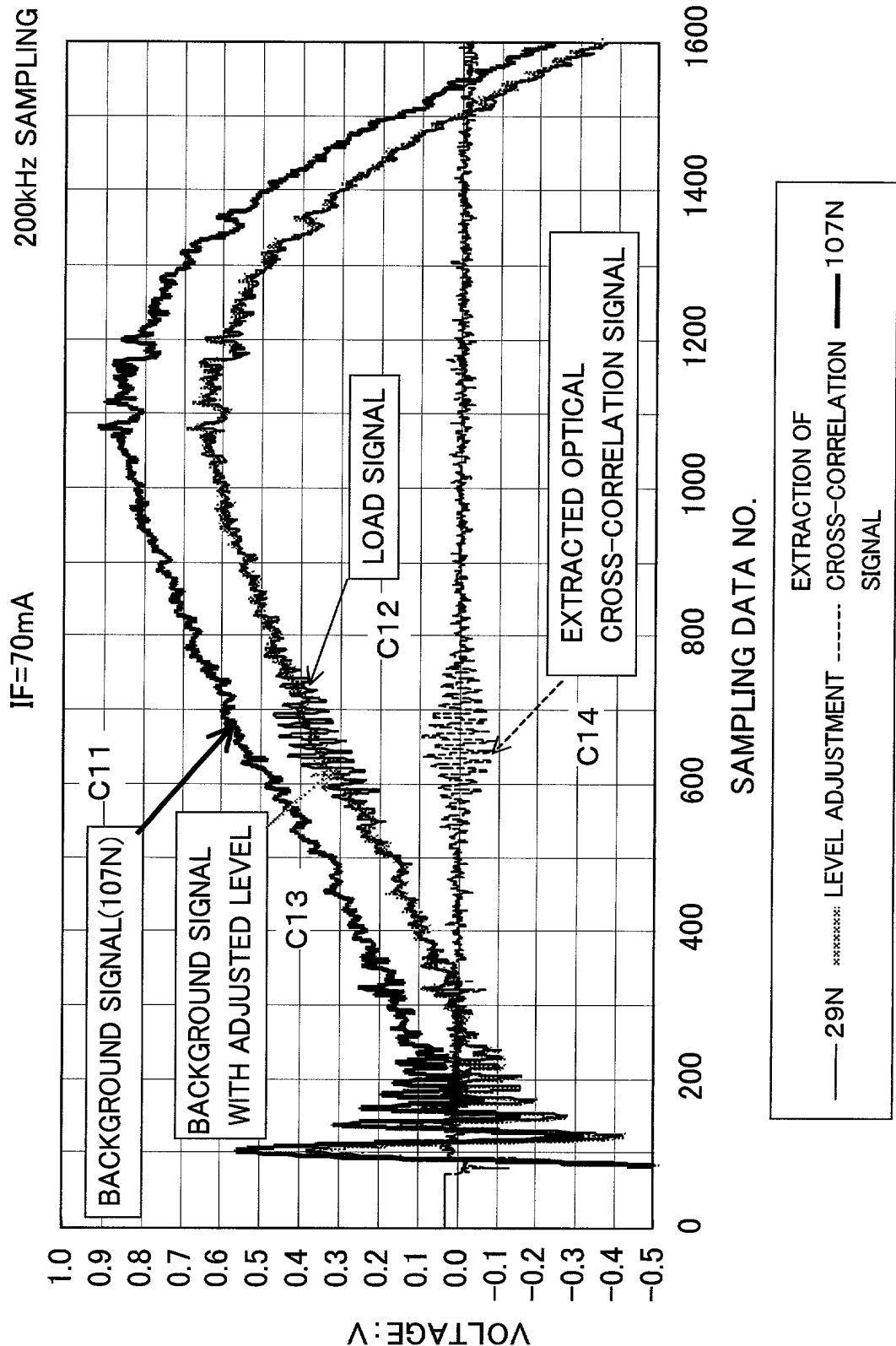
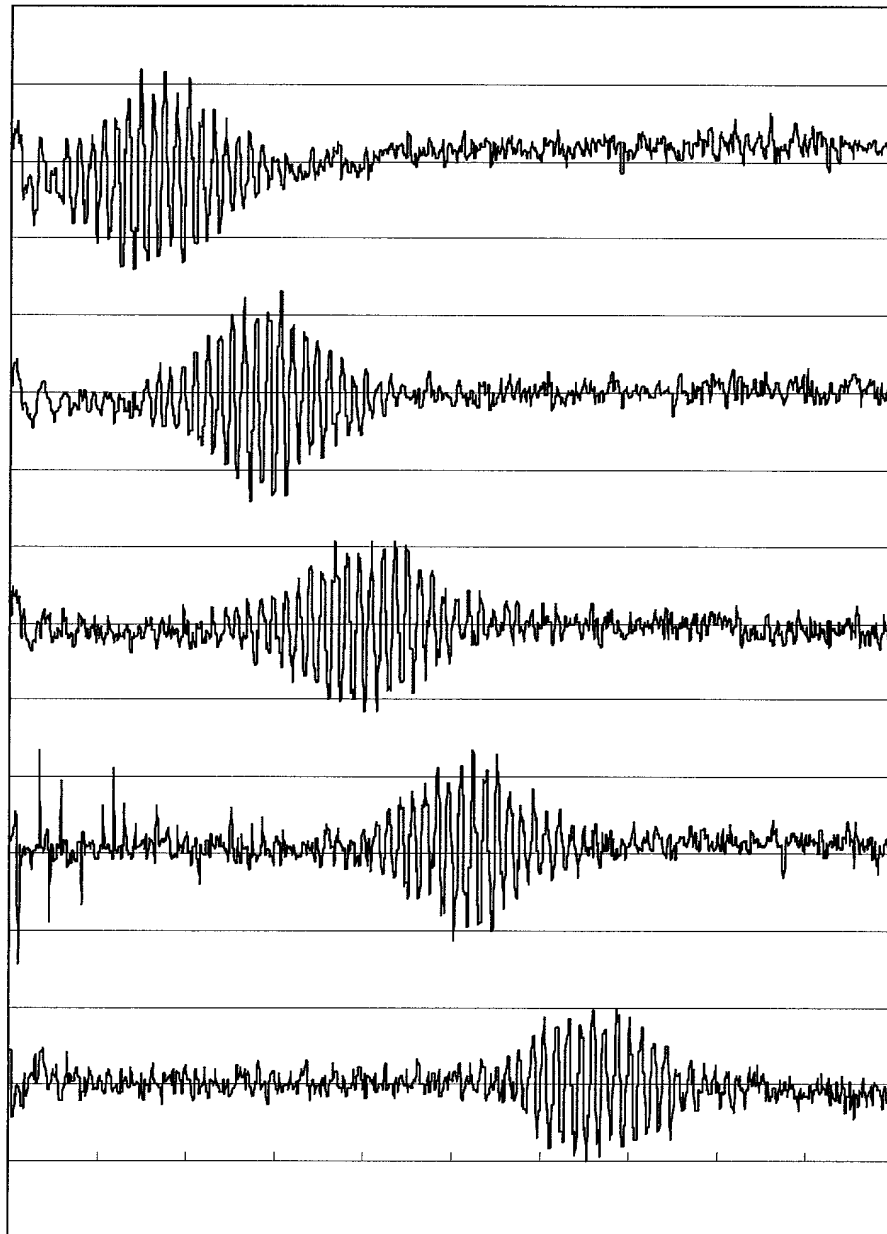


FIG. 17

DETECTION OF OPTICAL CROSS-CORRELATION SIGNAL WITH CCD LINEAR IMAGE SENSOR

AFTER CORRECTION BY A BIASING VALUE :IF=70mA

$$S_{LCOR}(n)$$



0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5

TIME (msec)

LOAD AMOUNT

FIG. 18A

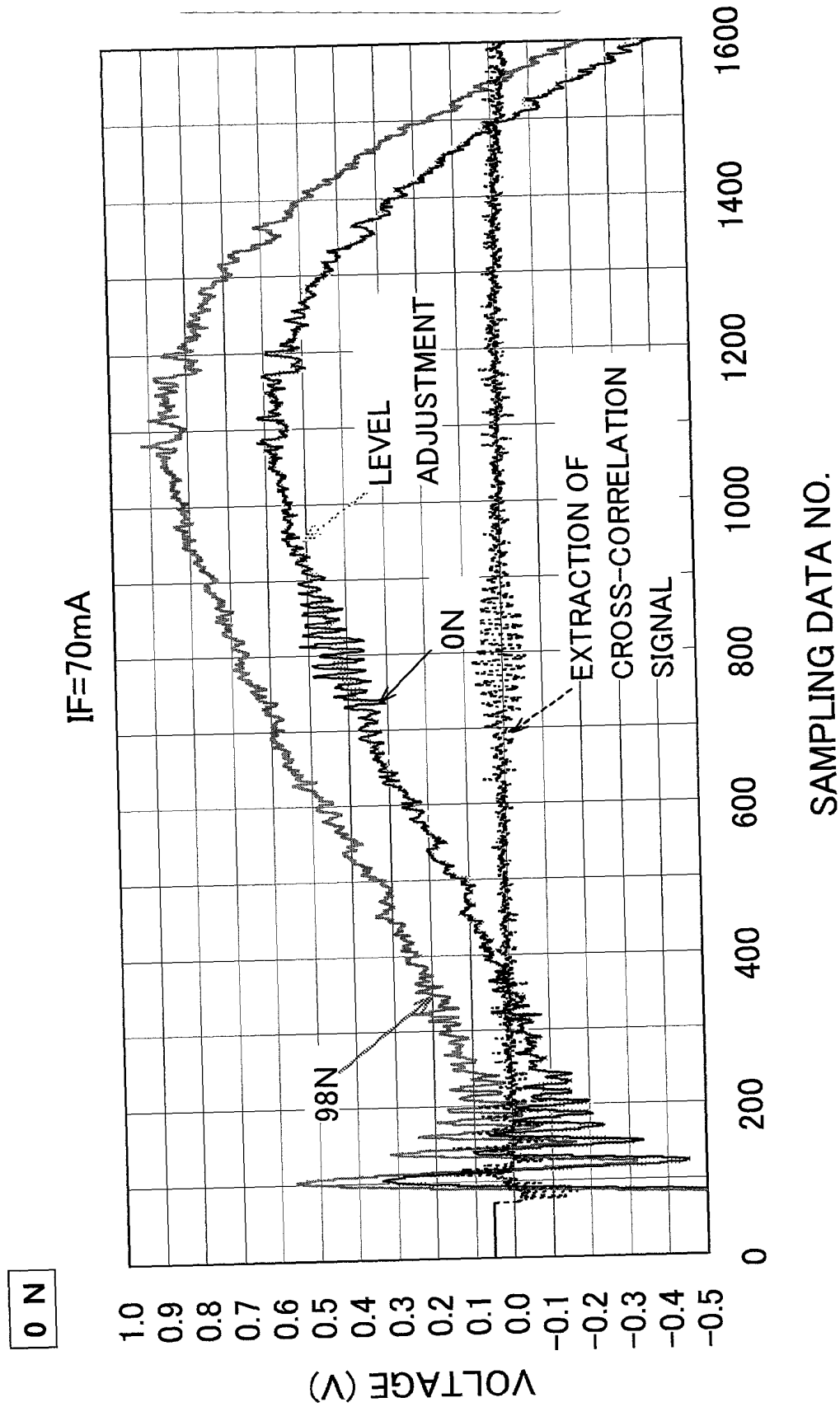
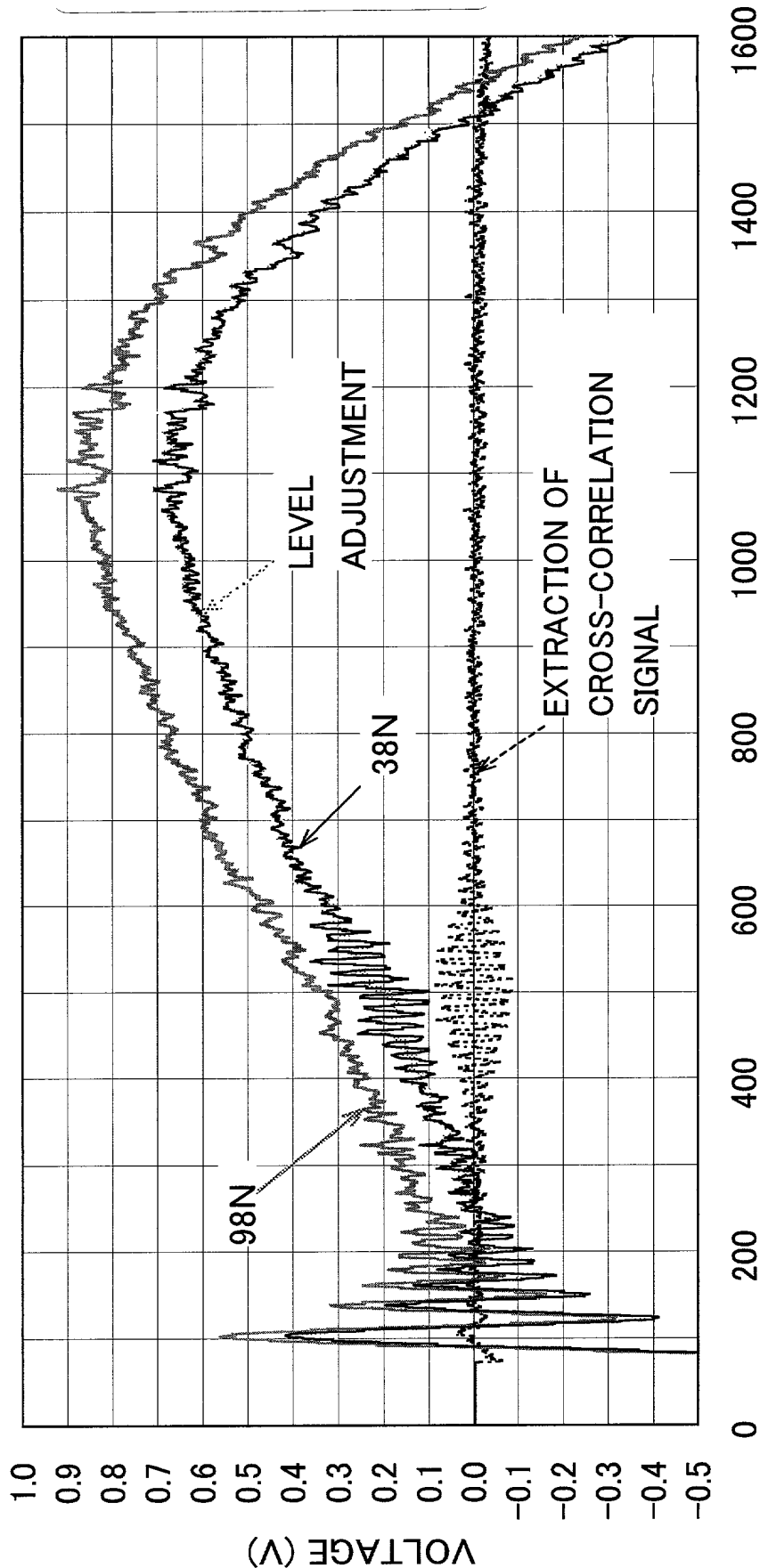


FIG. 18B

38 N

IF=70mA

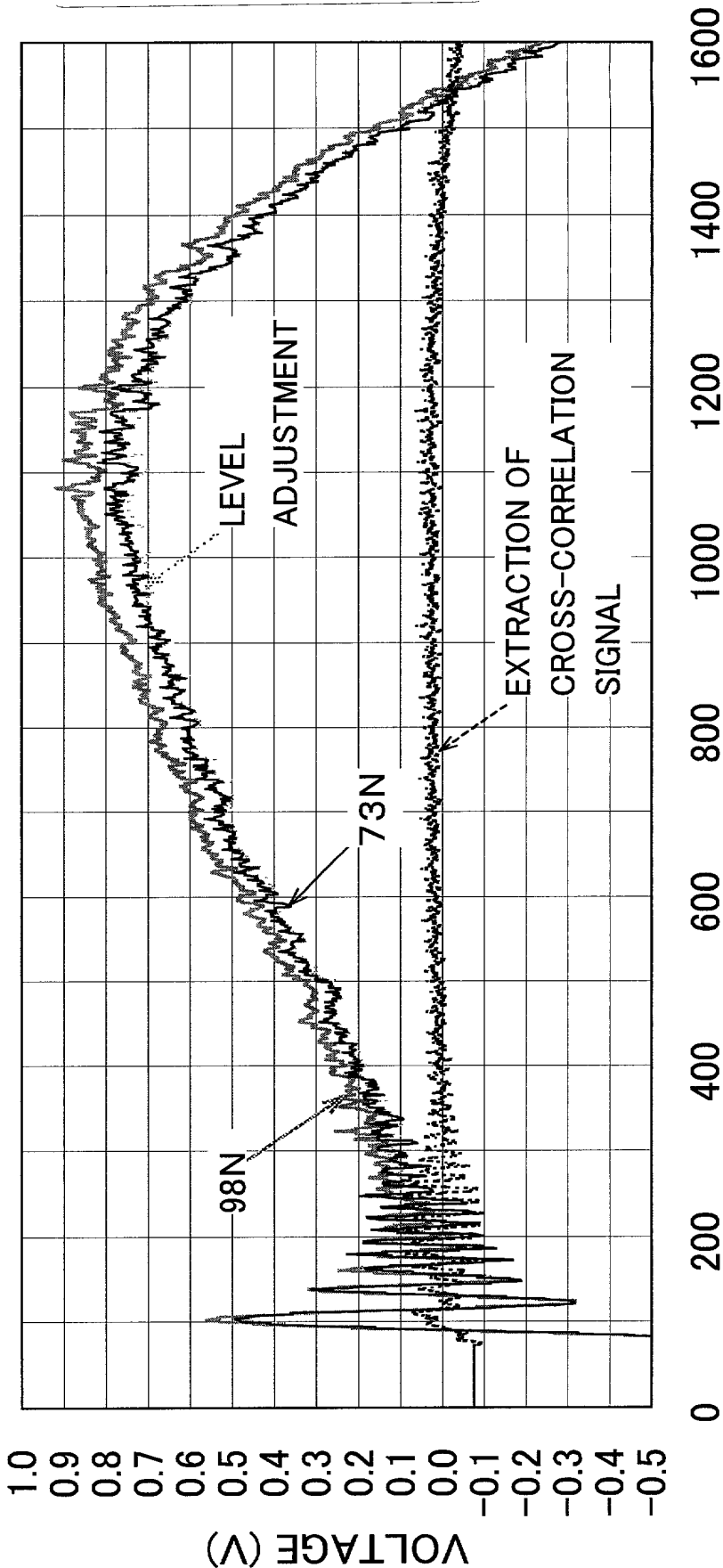


SAMPLING DATA NO.

FIG. 18C

73 N

IF=70mA



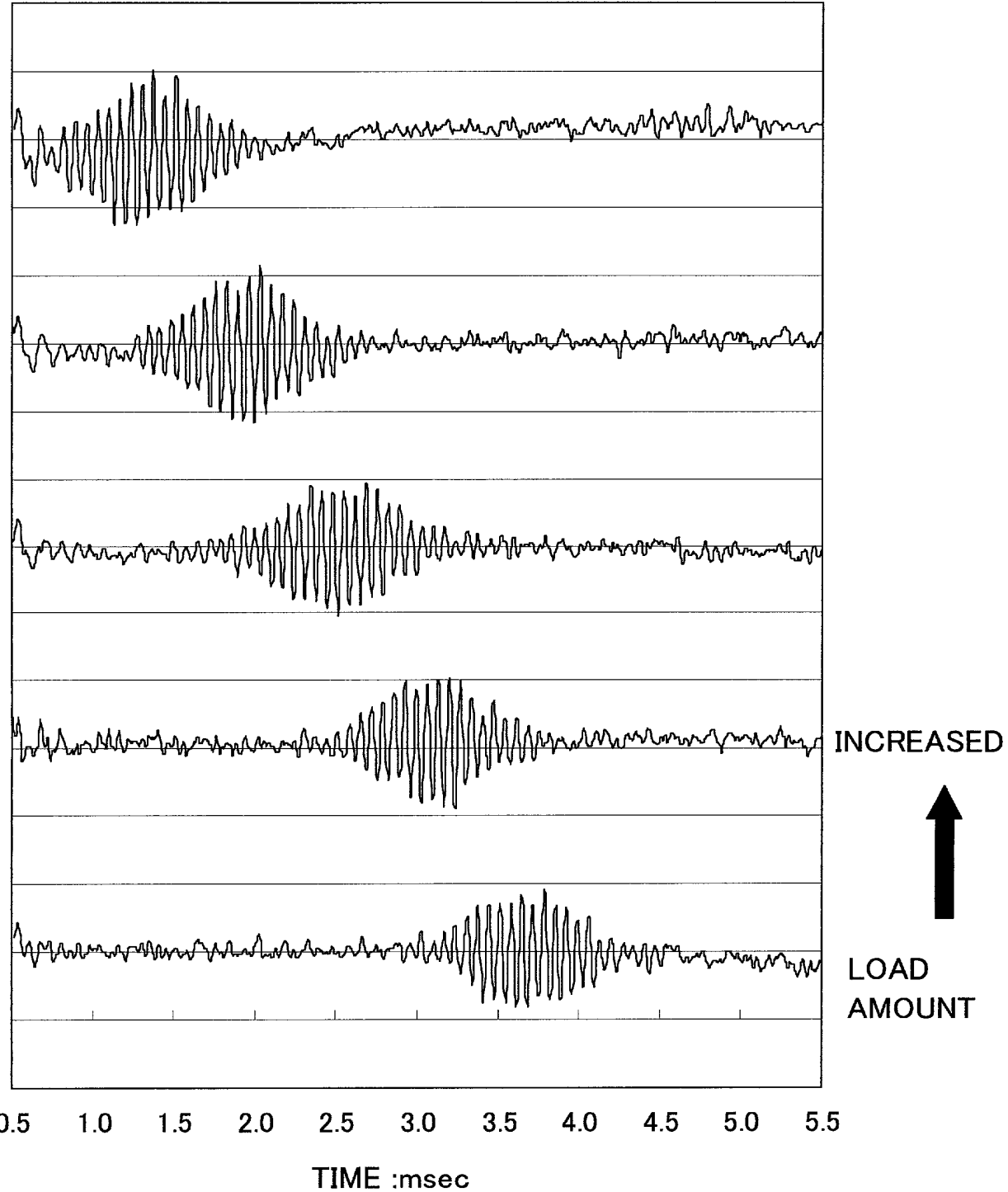
SAMPLING DATA NO.

FIG. 19

DETECTION OF OPTICAL CROSS-CORRELATION
 SIGNAL WITH CCD LINEAR IMAGE SENSOR

$$S_{LCOR,LPF}^{(n)}$$

AFTER CORRECTION BY A BIASING VALUE LPF :IF=70 mA



406460 "696650

FIG. 20A

ANALYSIS OF WHITE INTERFERENCE MEASURED DATA WITH
 CCD LINEAR IMAGE SENSOR

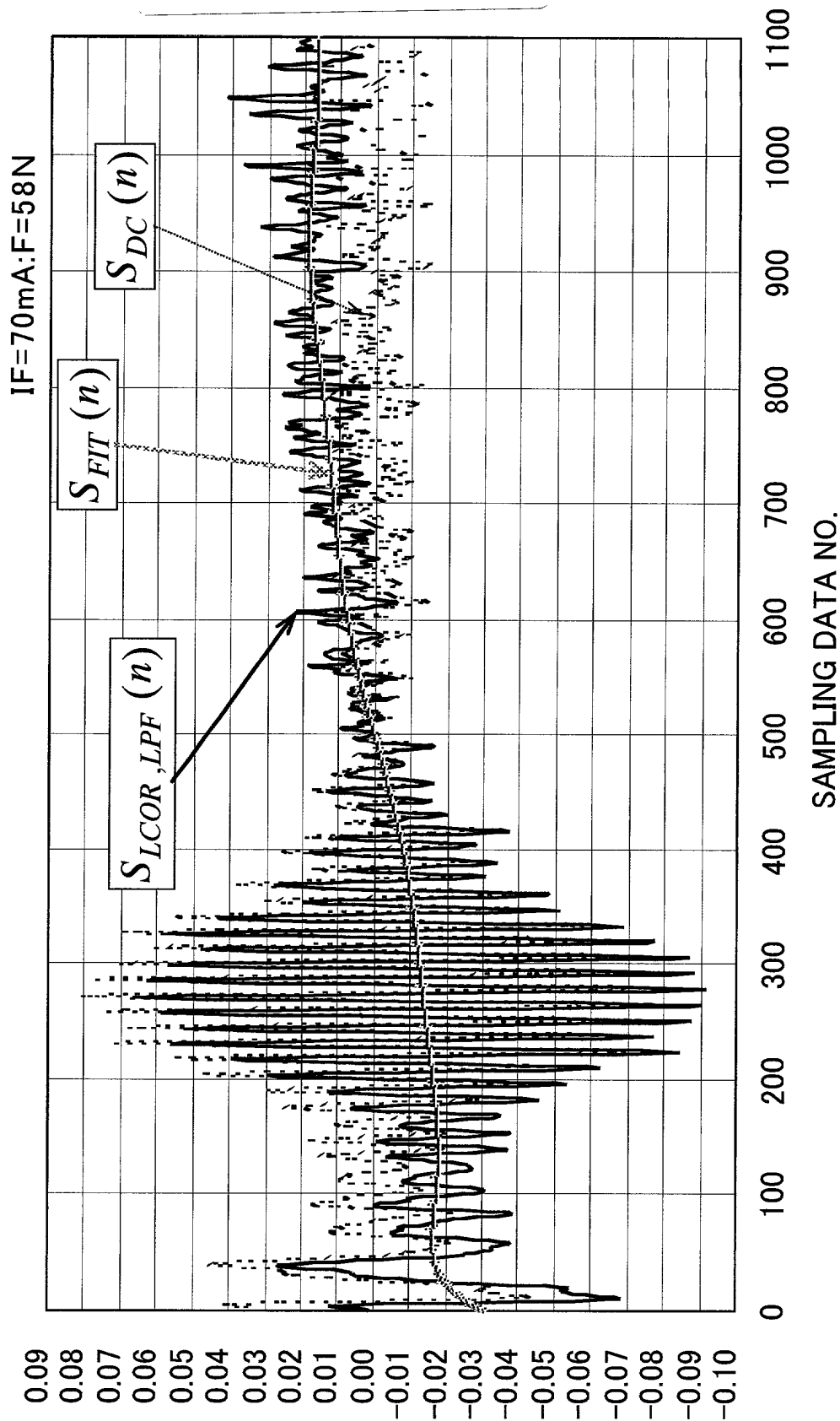


FIG. 20B

ANALYSIS OF WHITE INTERFERENCE MEASURED DATA WITH
CCD LINEAR IMAGE SENSOR

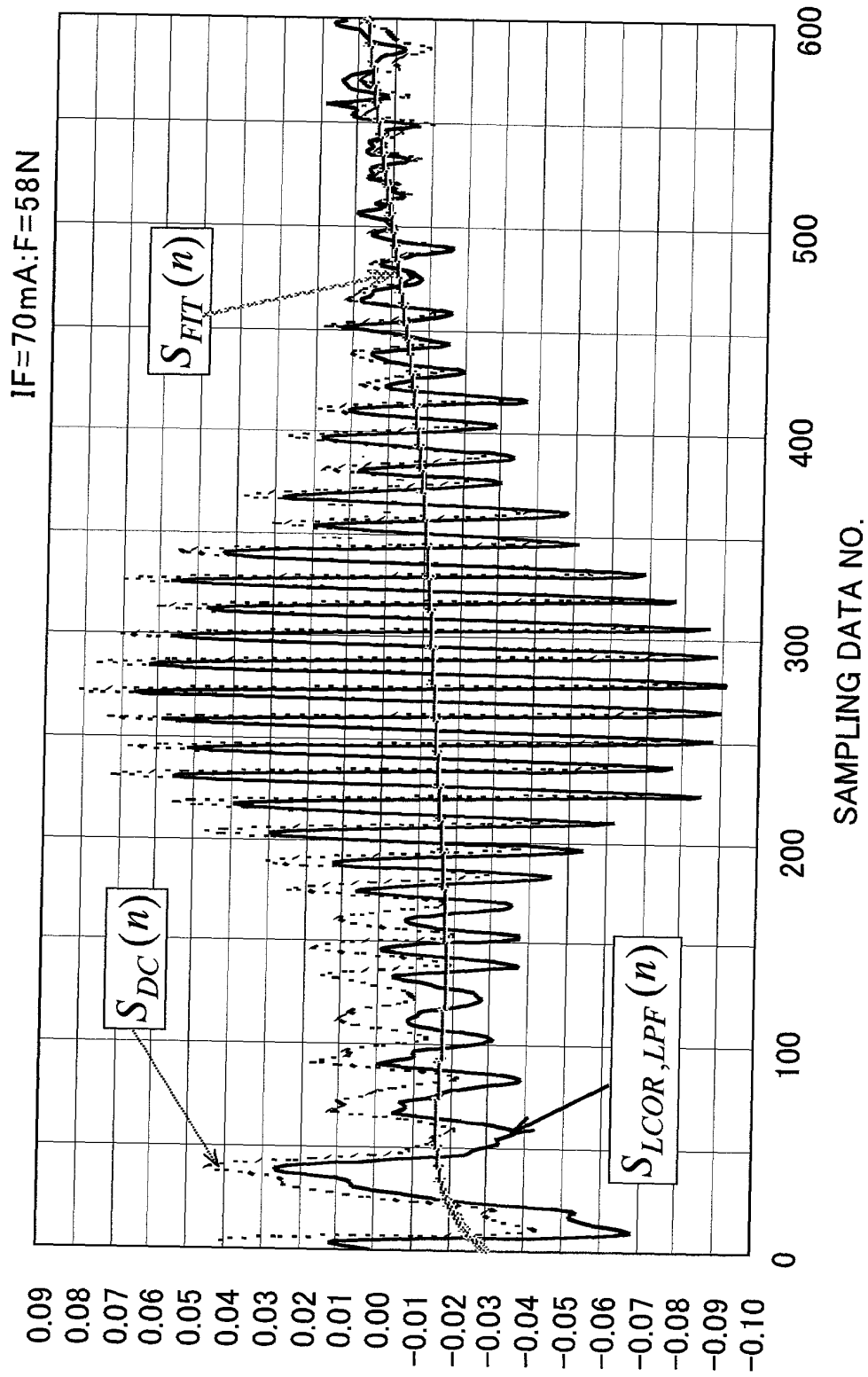


FIG. 21

ANALYSIS OF WHITE INTERFERENCE MEASURED DATA WITH

CCD LINEAR IMAGE SENSOR

IF=70mA:F=19N

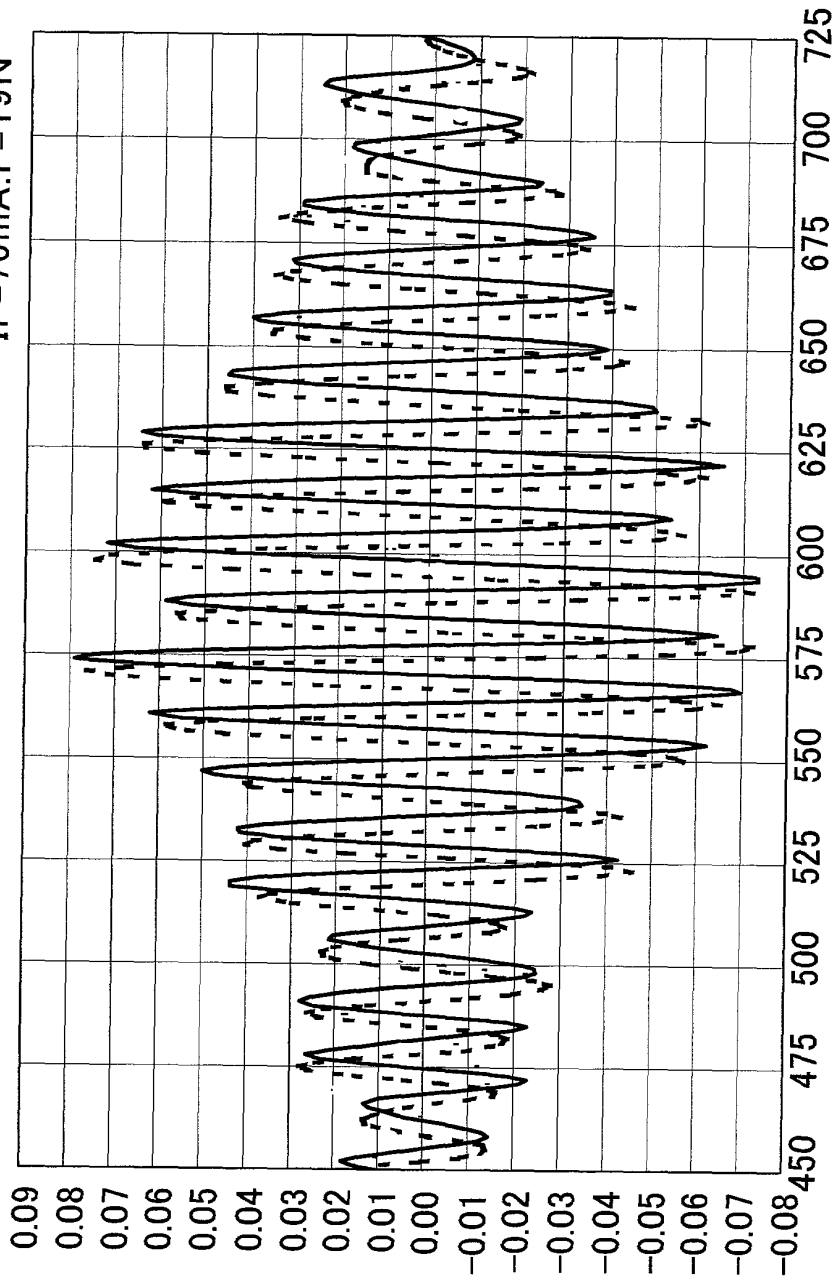
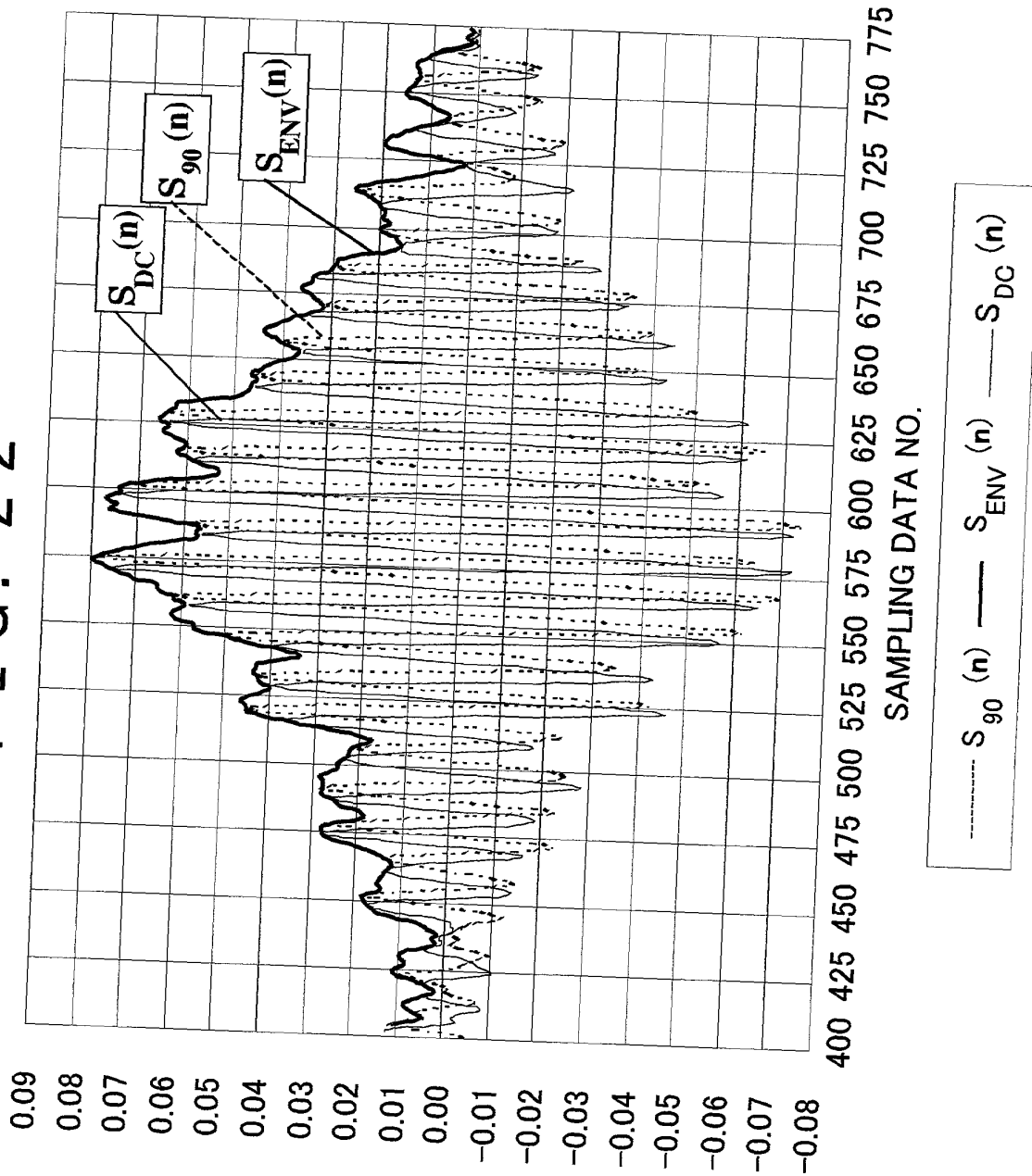
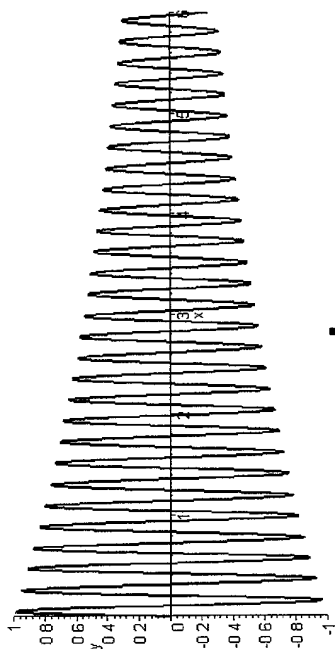


FIG. 22



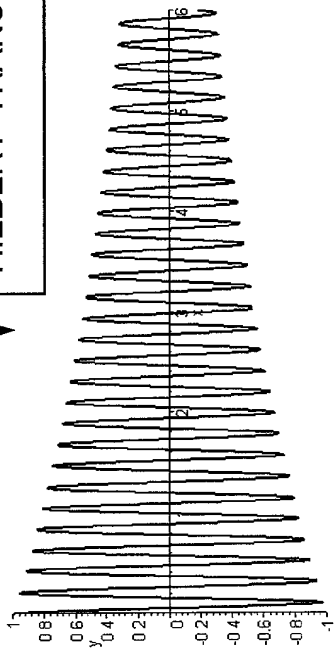
INPUT RESPONDING WAVEFORM

$$\mathbf{h}(t) = A \cdot \exp(-\alpha \cdot t) \cdot \sin(\omega_0 \cdot t)$$



\hat{H}

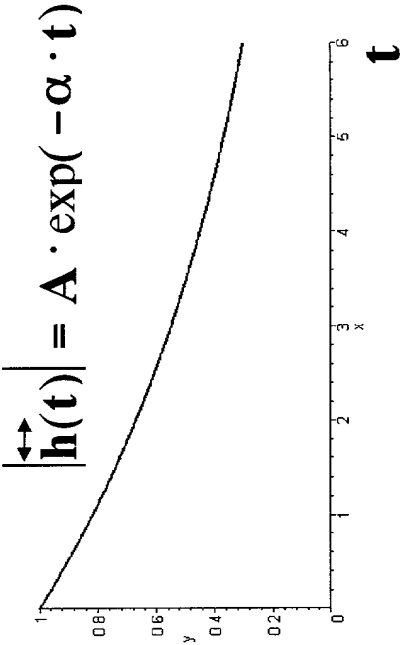
HILBERT TRANSFORM



$$\tilde{\mathbf{h}}(t) = A \cdot \exp(-\alpha \cdot t) \cdot \cos(\omega_0 \cdot t)$$

$\left\{ \begin{array}{l} \mathbf{h}(t) \\ \tilde{\mathbf{h}}(t) \end{array} \right\}$

ENVELOPE



$$|\vec{\mathbf{h}}(t)| = A \cdot \exp(-\alpha \cdot t)$$

$$\vec{\mathbf{h}}(t) = \mathbf{h}(t) + j \cdot \tilde{\mathbf{h}}(t)$$

$$|\vec{\mathbf{h}}(t)| = \sqrt{[\mathbf{h}(t)]^2 + [\tilde{\mathbf{h}}(t)]^2}$$

FIG. 24

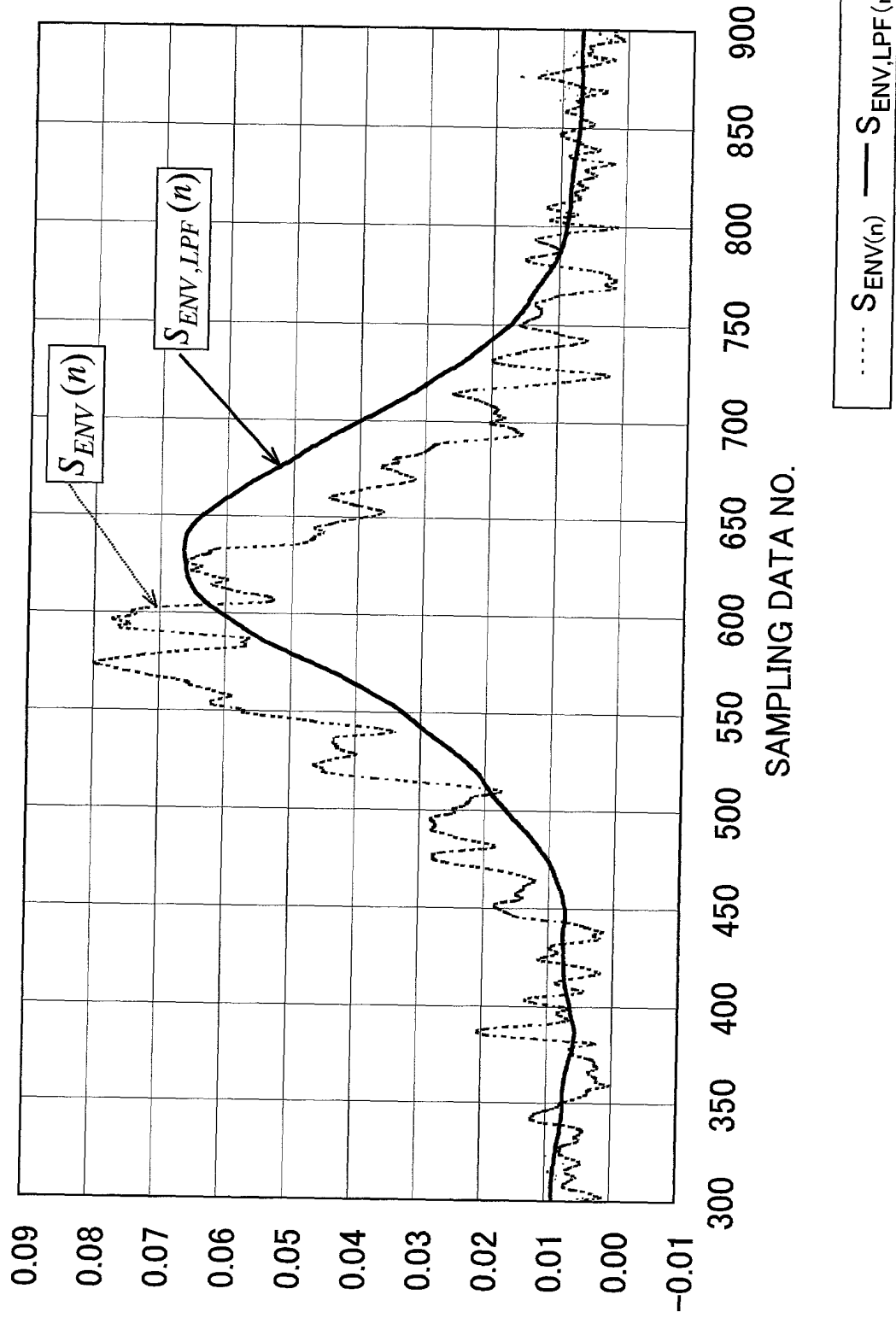


FIG. 25

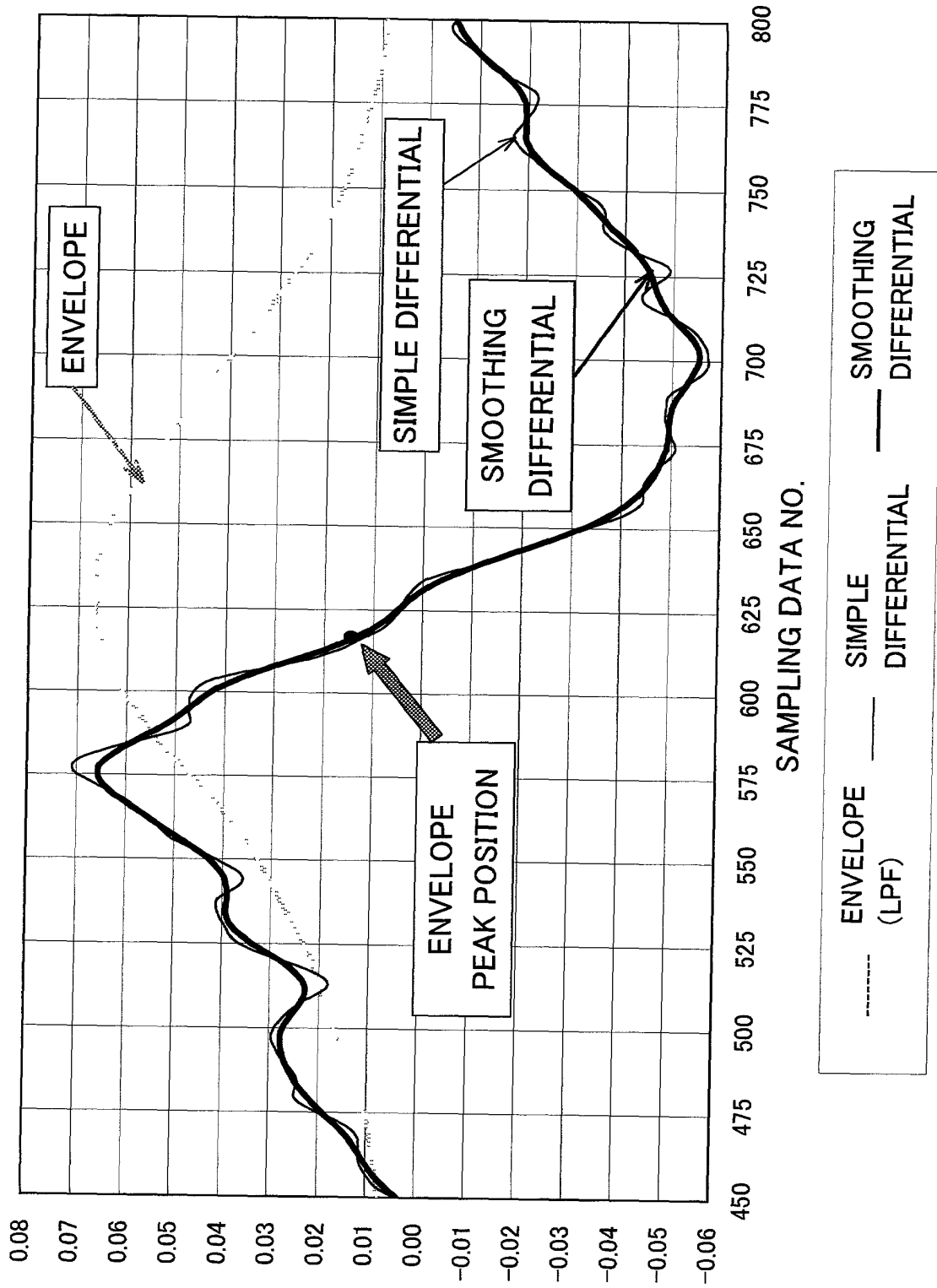


FIG. 26

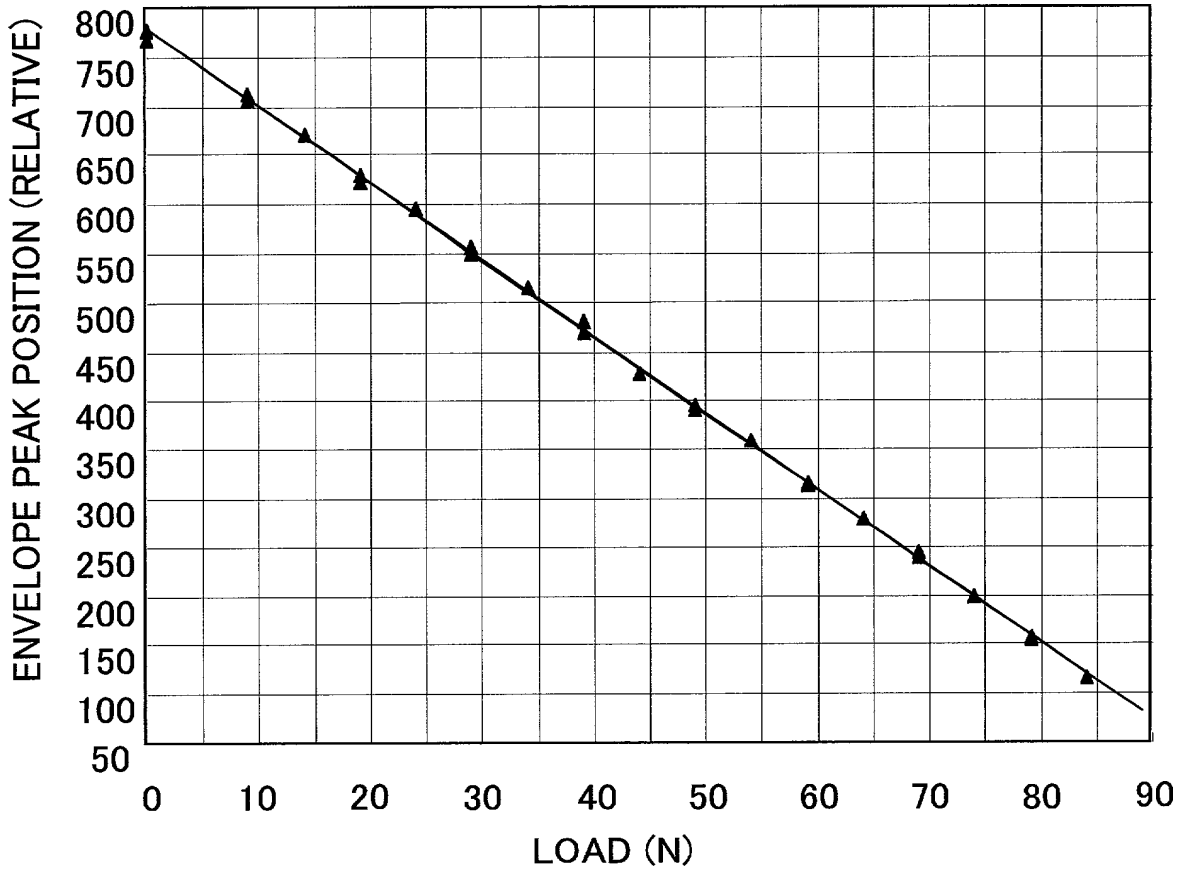


FIG. 27A PRIOR ART

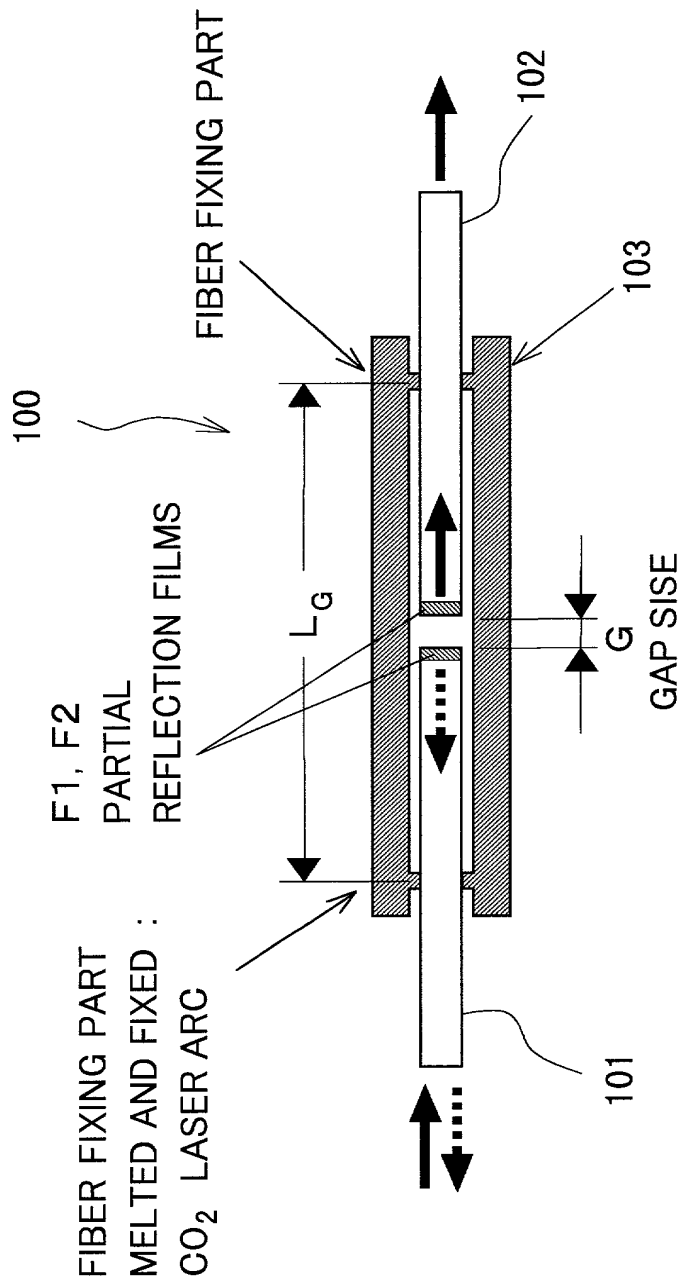


FIG. 27B PRIOR ART

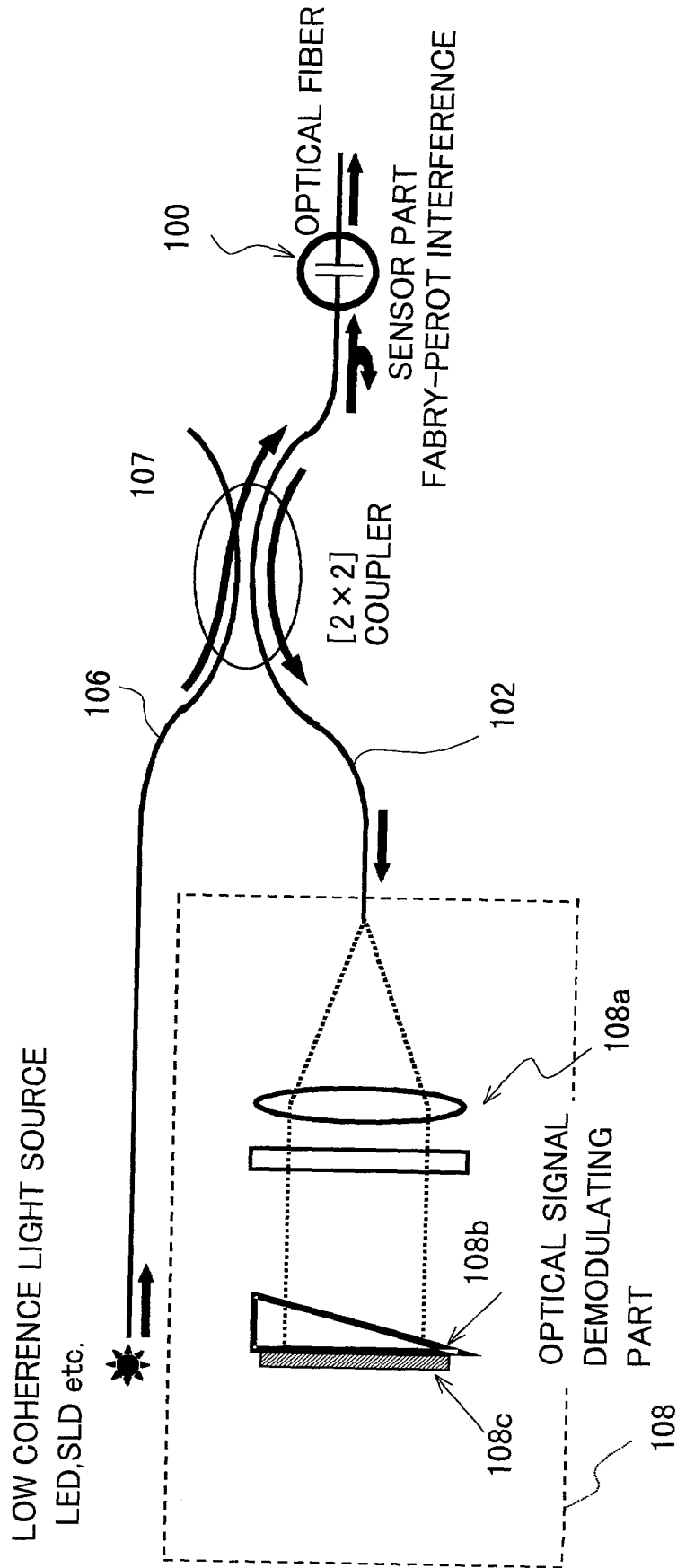


FIG. 28 PRIOR ART

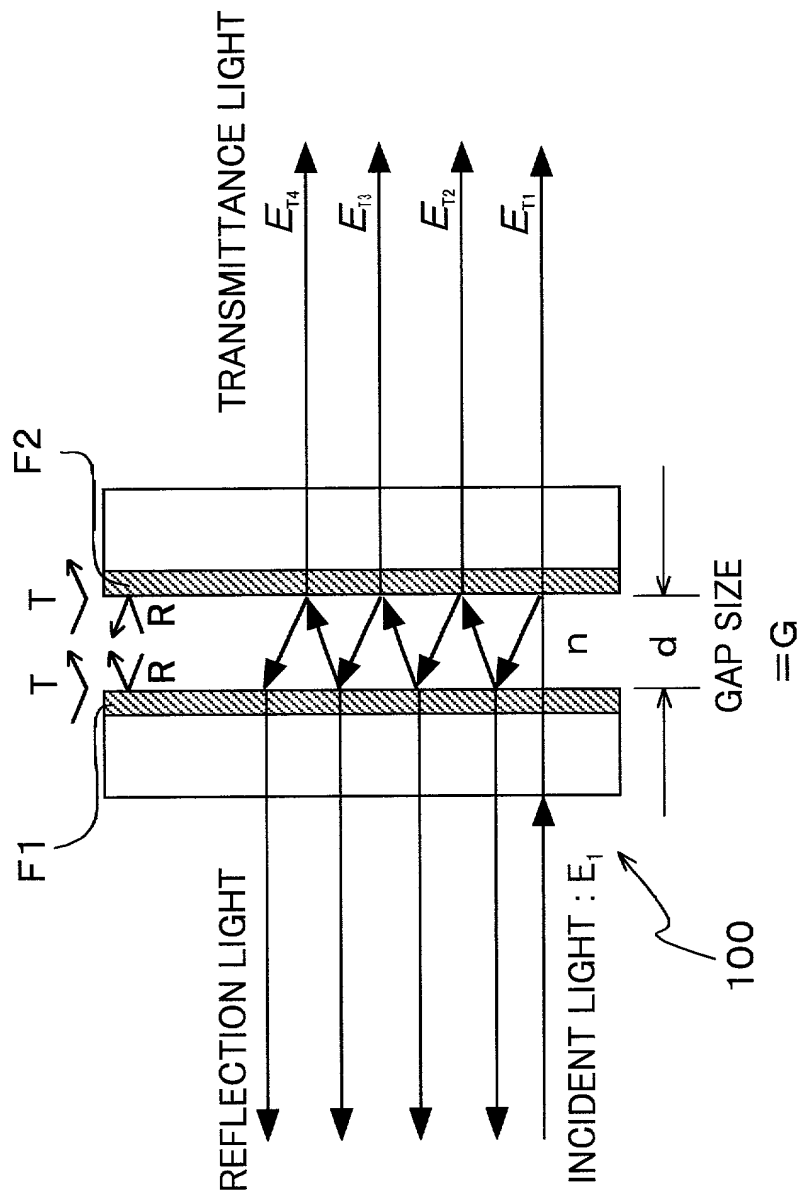
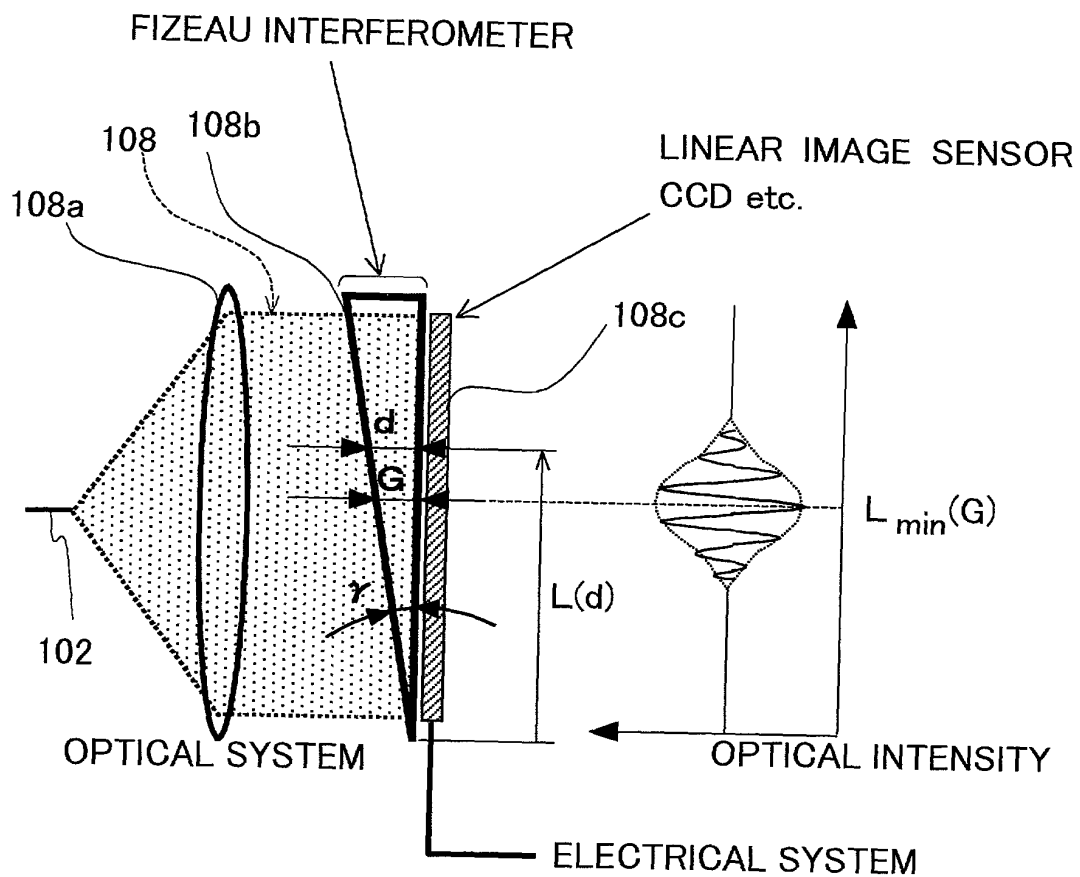


FIG. 29 PRIOR ART



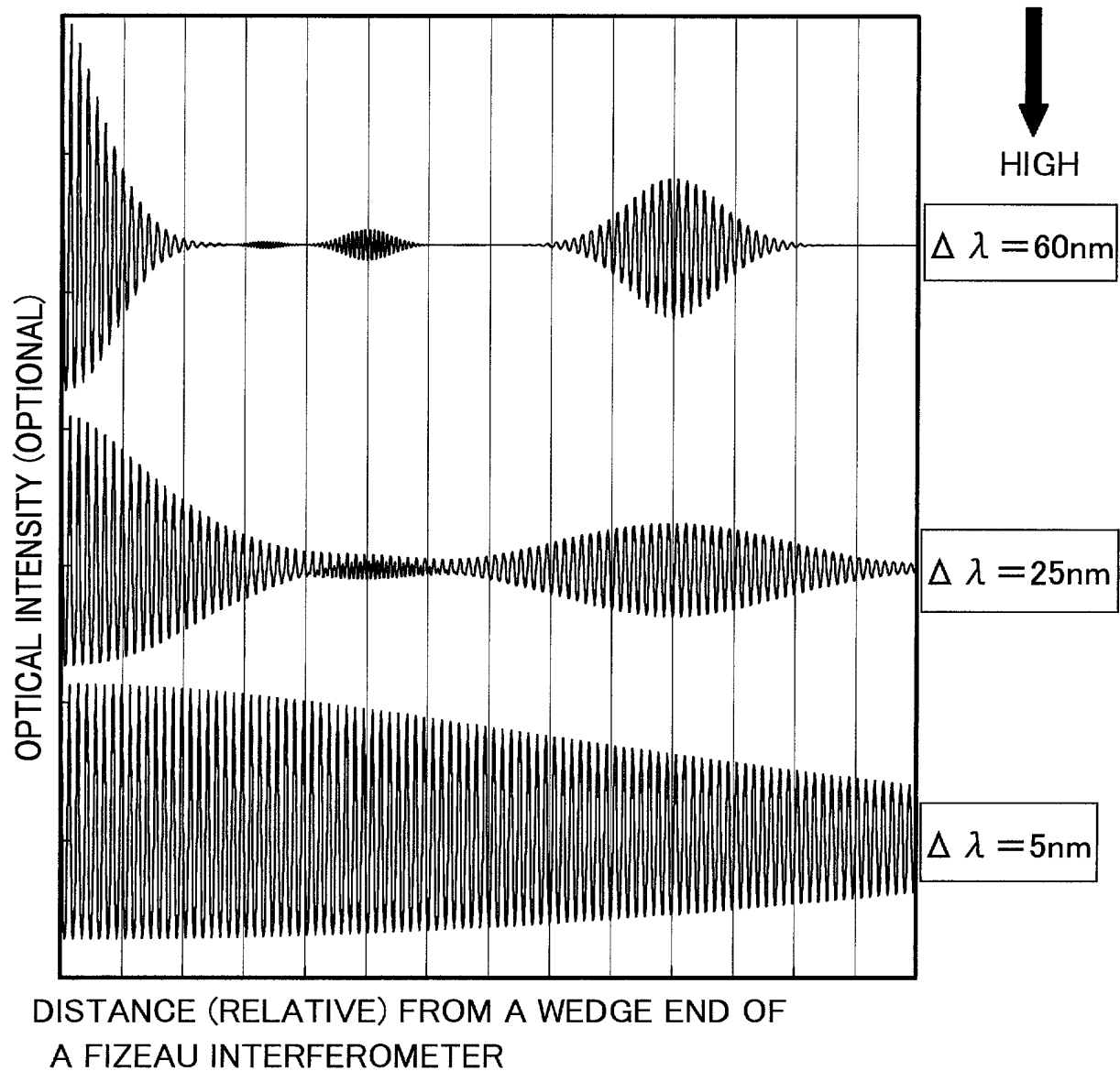
09455155-091901

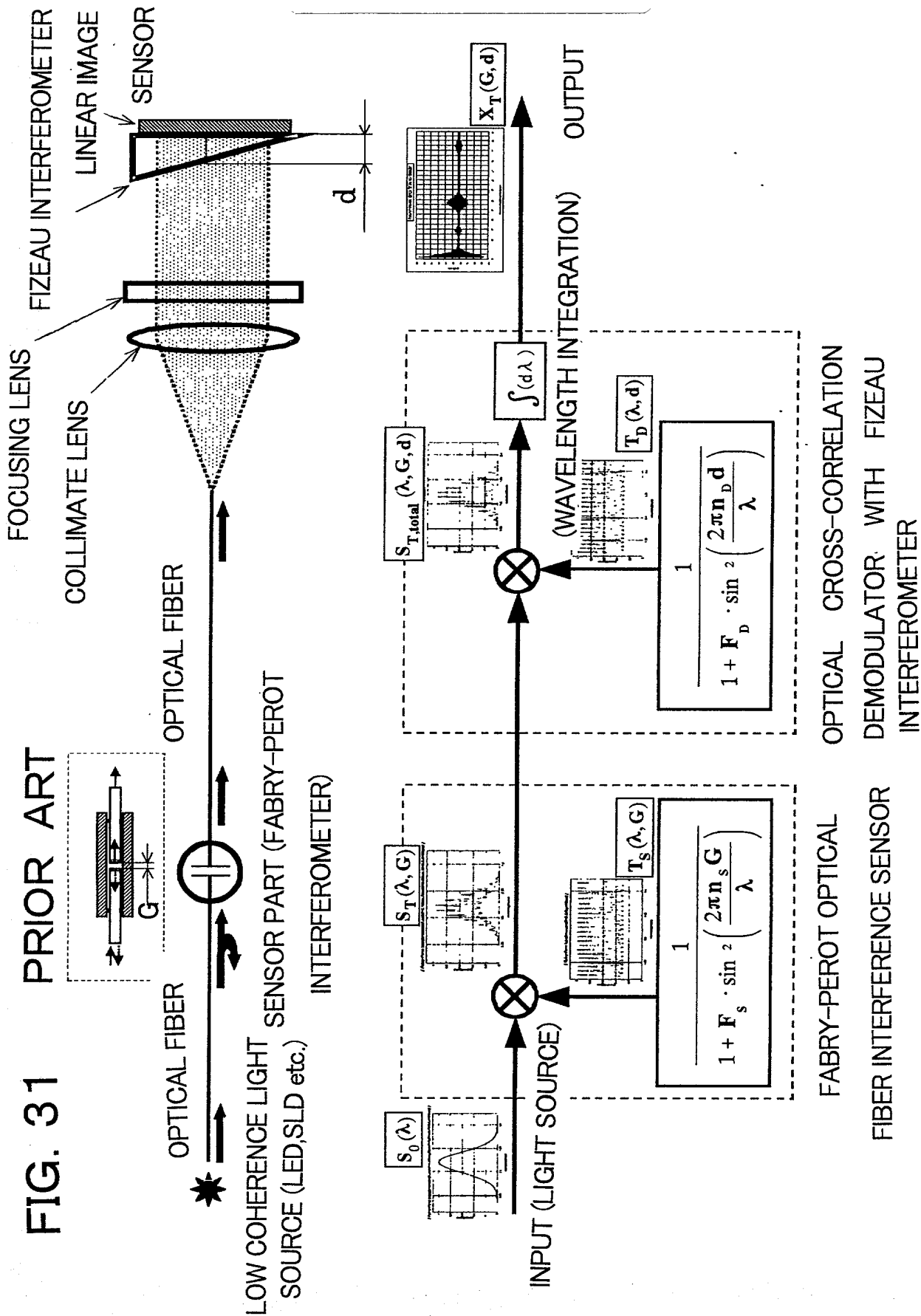
FIG. 30 PRIOR ART

VARIATION OF AN OUTPUT SIGNAL IN
 RESPECT TO A SPECTRUM WIDTH $\Delta\lambda$ OF A
 LIGHT SOURCE

: $\lambda_0 = 850\text{nm}$

COHERENCE





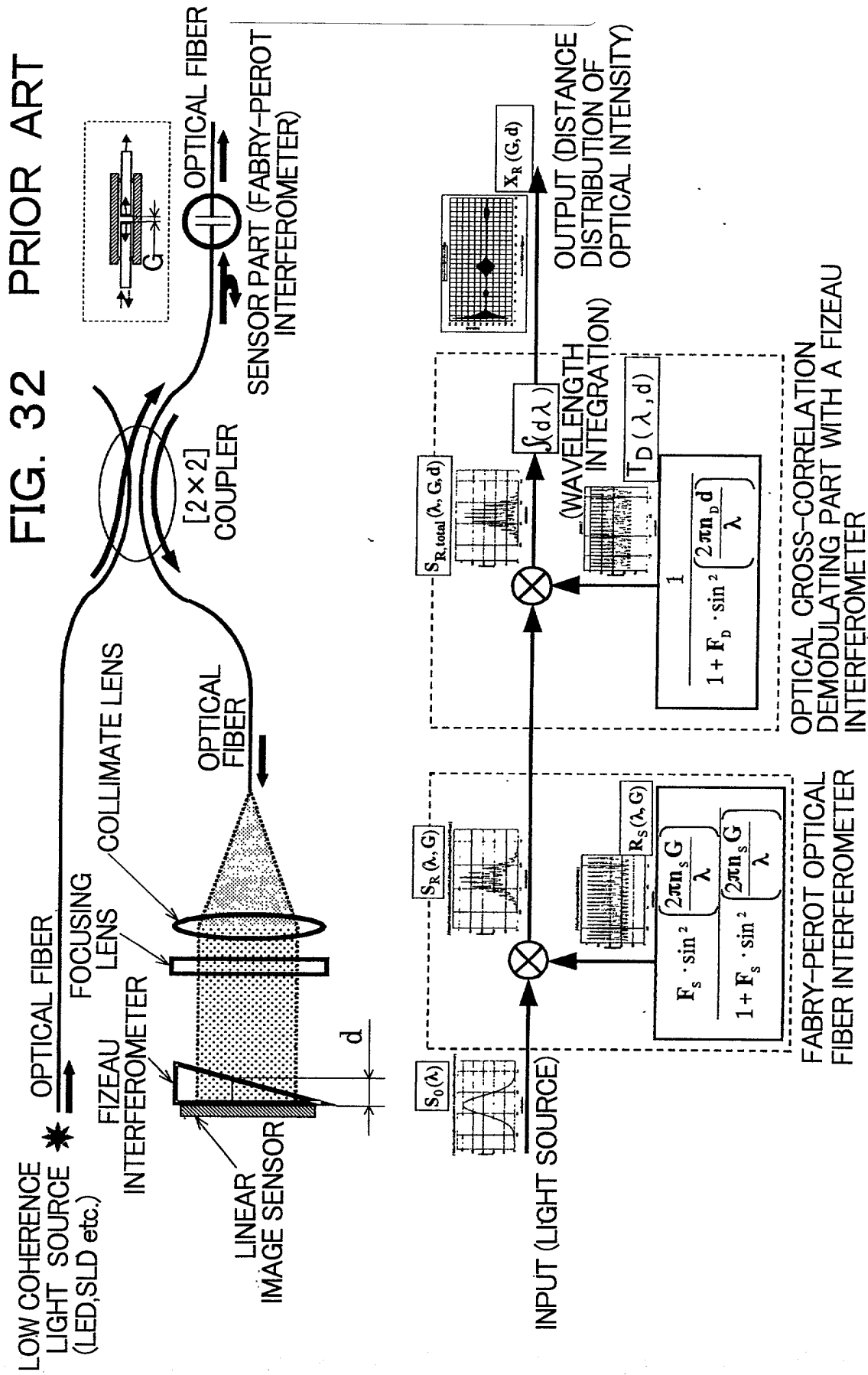
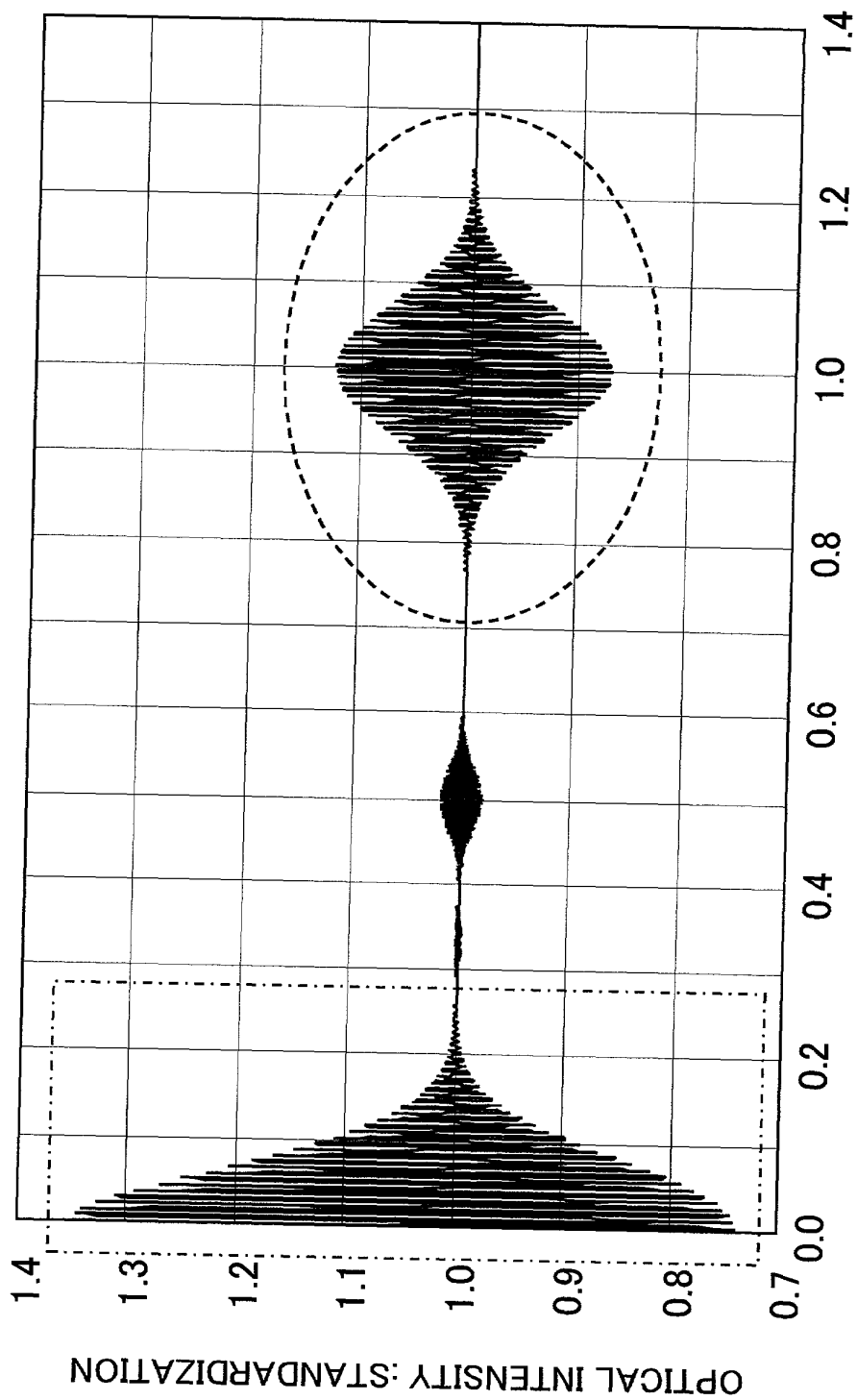


FIG. 33A PRIOR ART



DISTANCE (RELATIVE) FROM A WEDGE END OF A FIZEAU INTERFEROMETER

FIG. 33B PRIOR ART

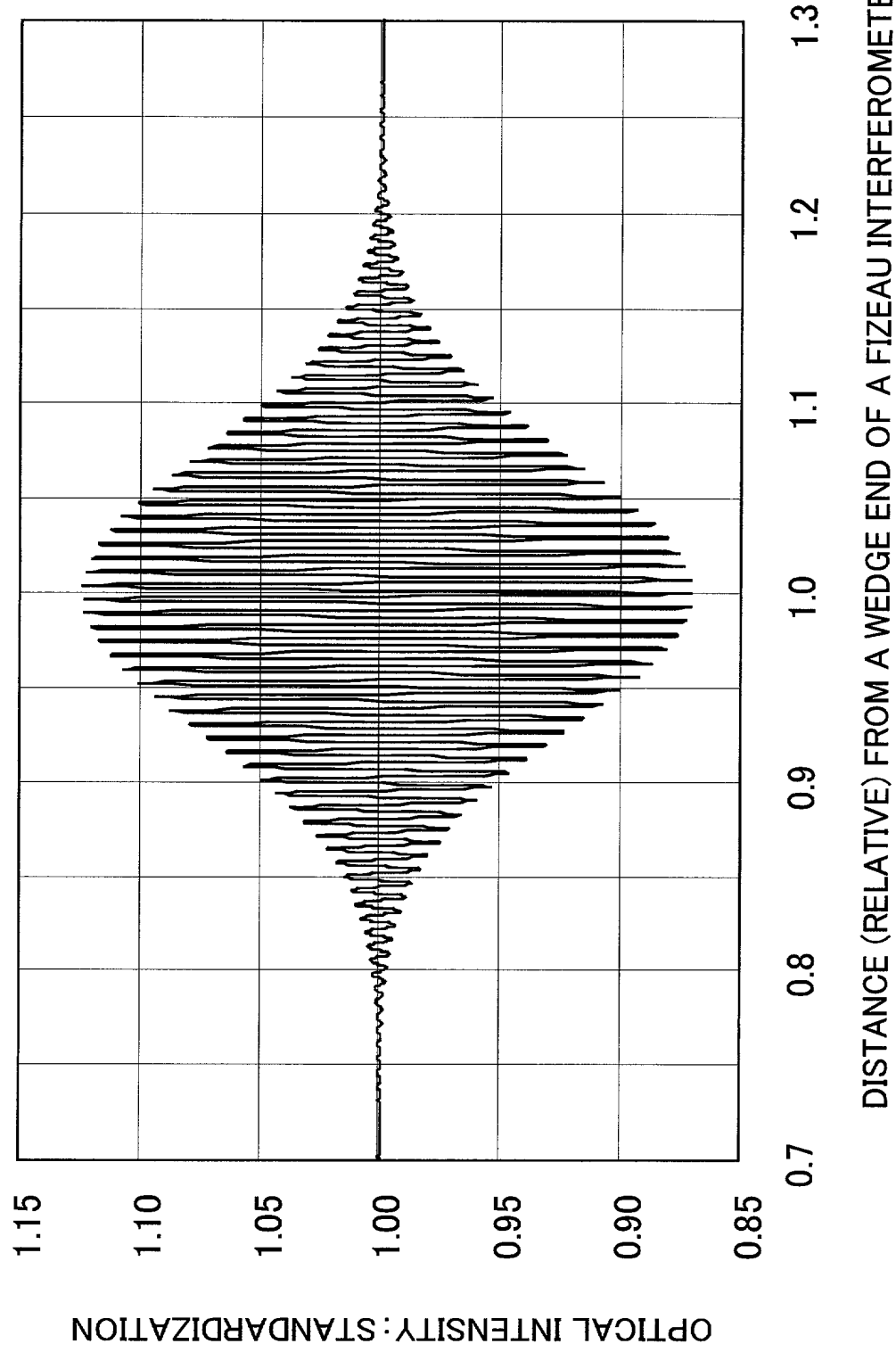


FIG. 34A PRIOR ART

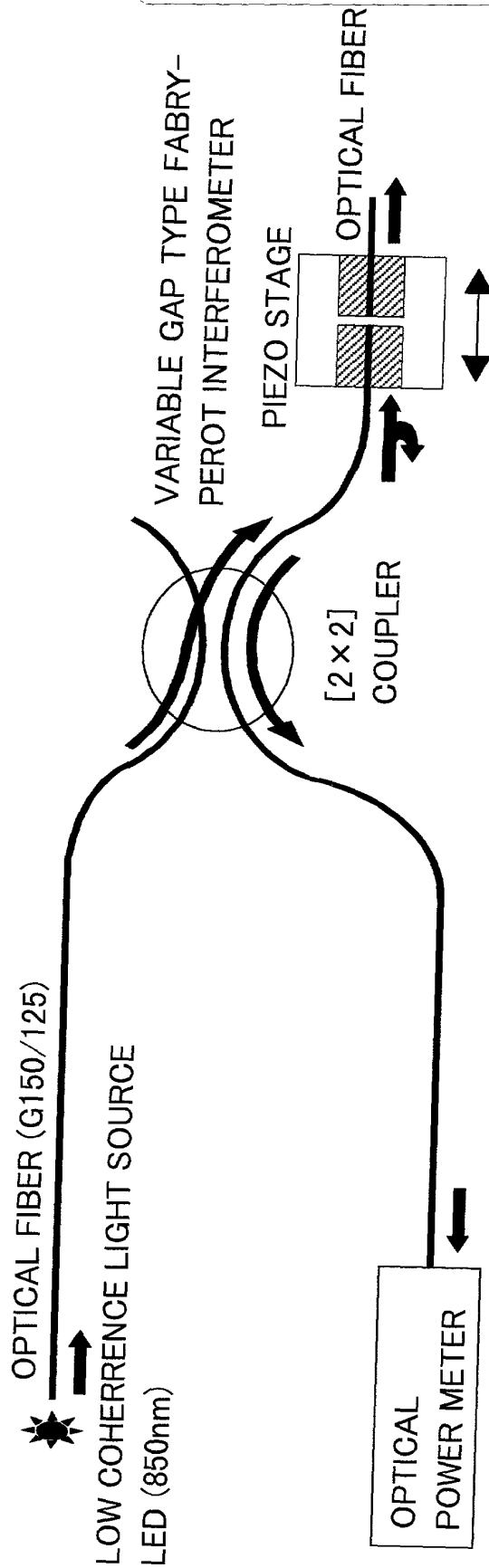


FIG. 34B PRIOR ART

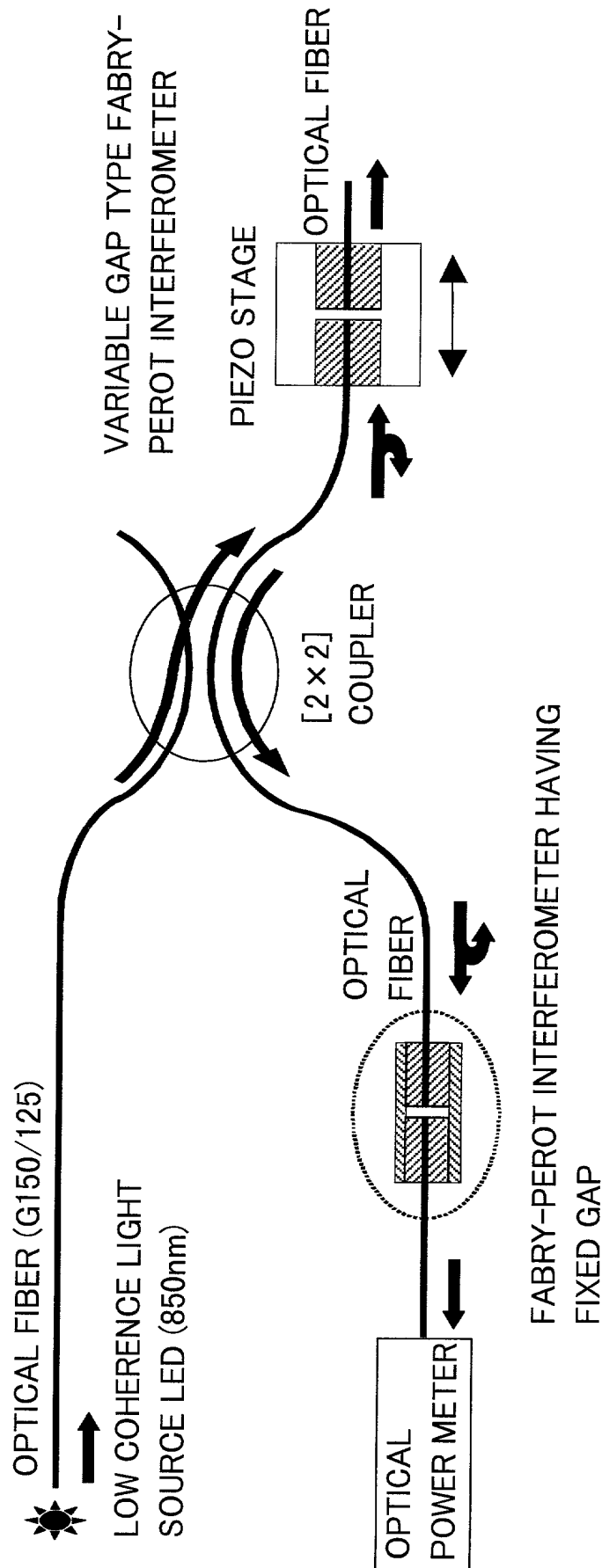


FIG. 35A PRIOR ART

MEASURING SYSTEM WITHOUT FIXED GAP TYPE FABRY-PEROT INTERFEROMETER

FIXED GAP TYPE FABRY-PEROT
INTERFEROMETER (SENSOR) (NONE)

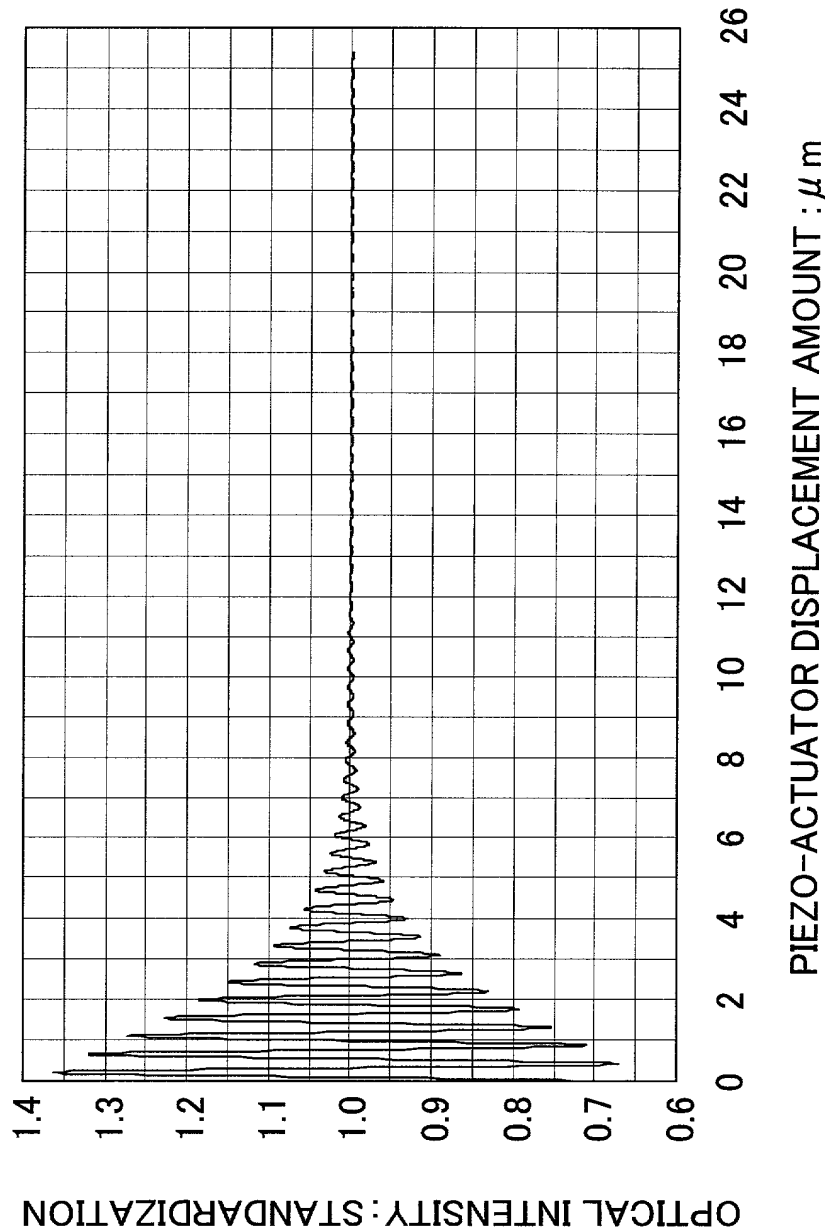


FIG. 35B PRIOR ART

MEASURING SYSTEM WITH FIXED GAP FABRY-PEROT INTERFEROMETER

FIXED GAP TYPE FABRY-PEROT
INTERFEROMETER (SENSOR)(INSTALLED)

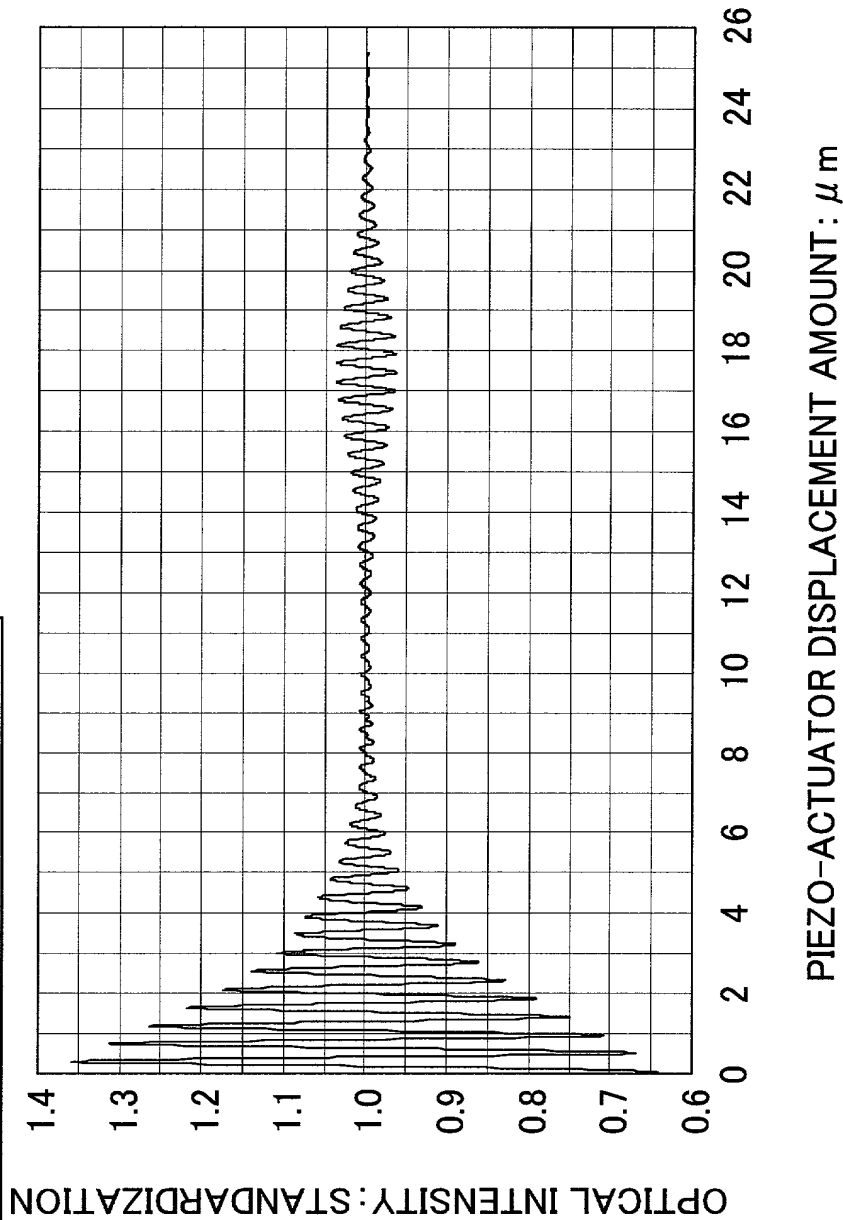


FIG. 36A

FABRY-PEROT WHITE INTERFERO SENSOR: LIGHT SOURCE1 ($R=0.3, d=20 \mu m$)

LIGHT SOURCE 1

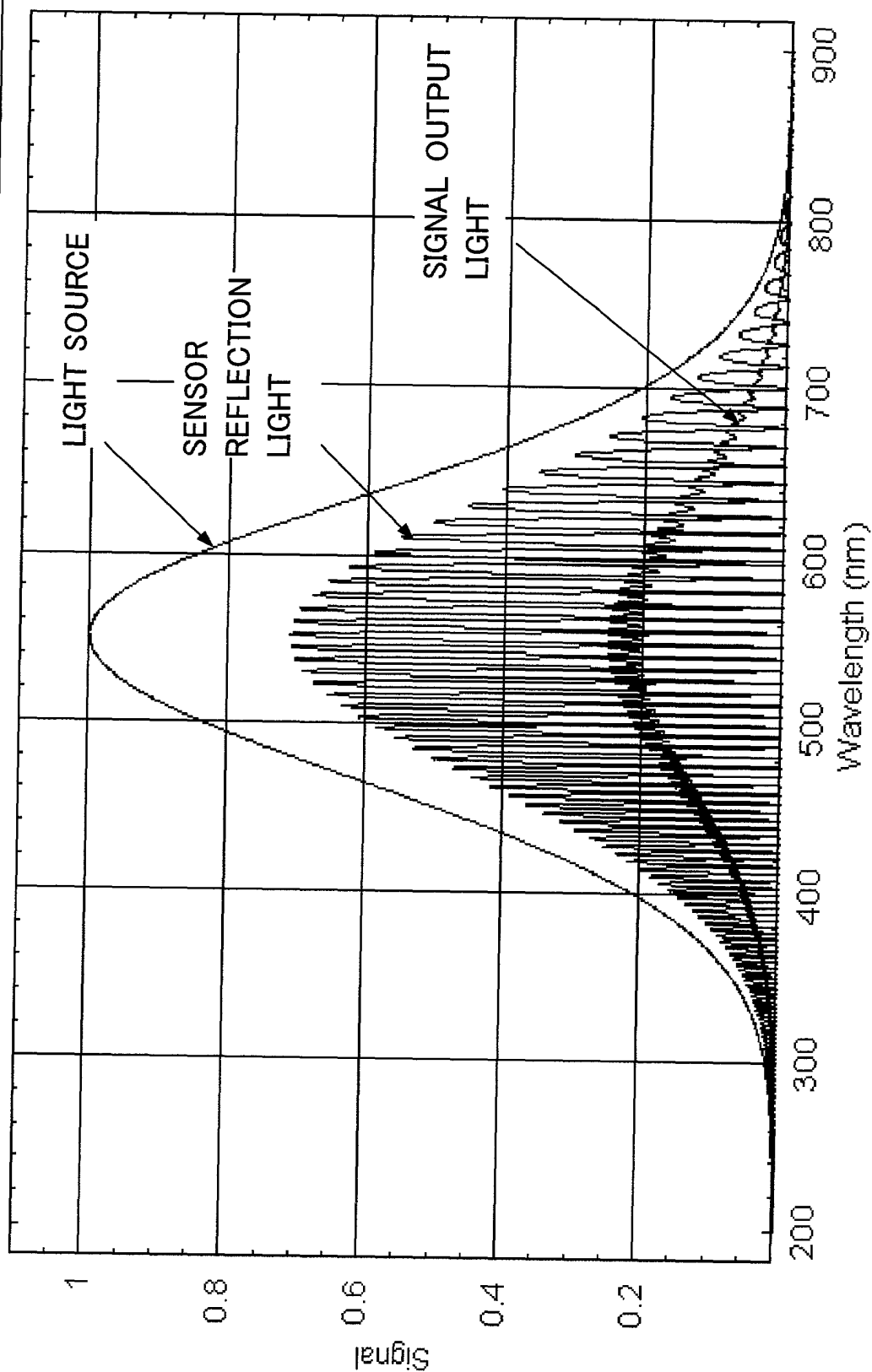


FIG. 36B

LIGHT SOURCE 2

FABRY-PEROT WHITE INTERFERO SENSOR: LIGHT SOURCE2 ($R=0.3, d=20 \mu m$)

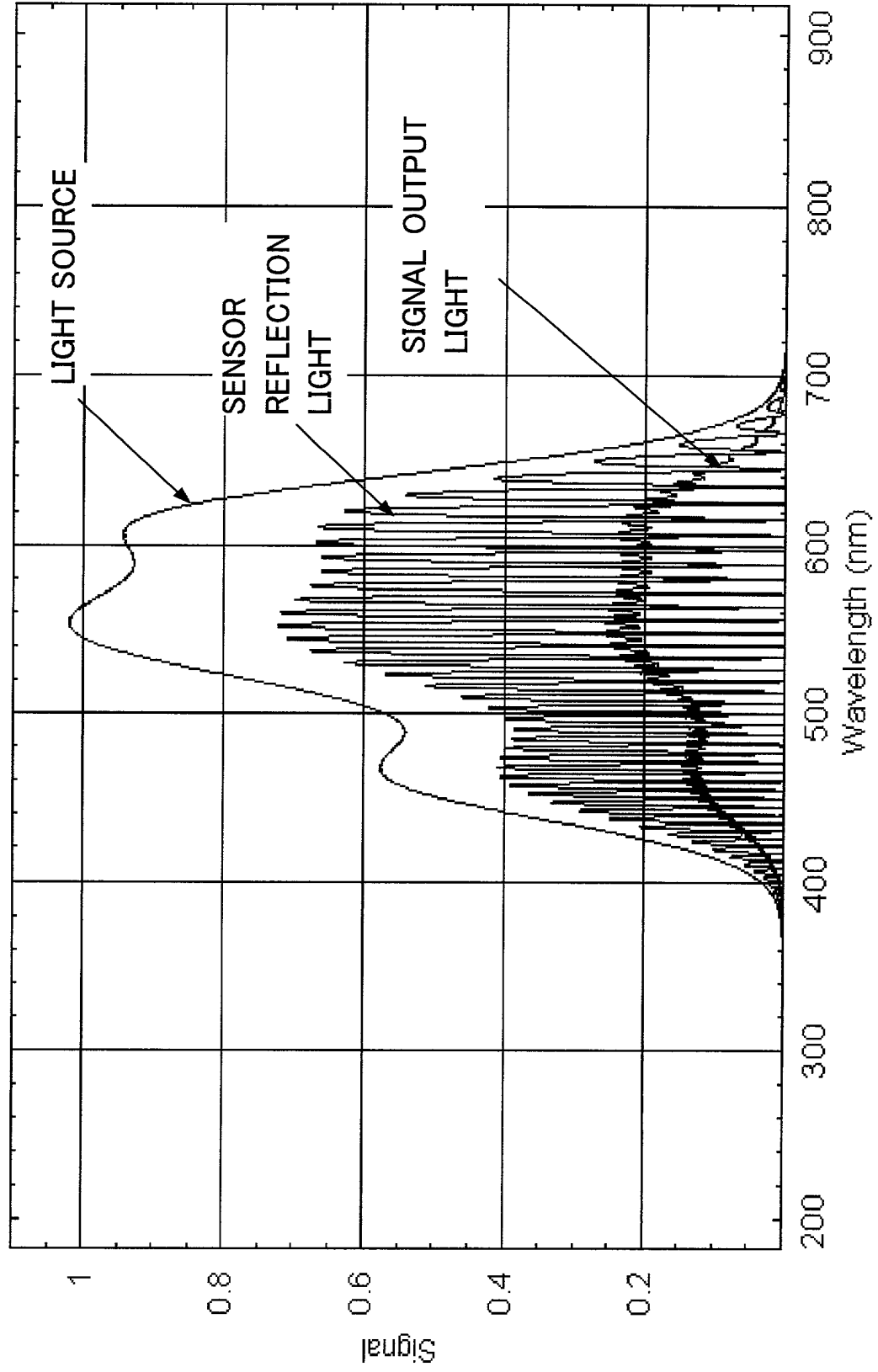


FIG. 36C

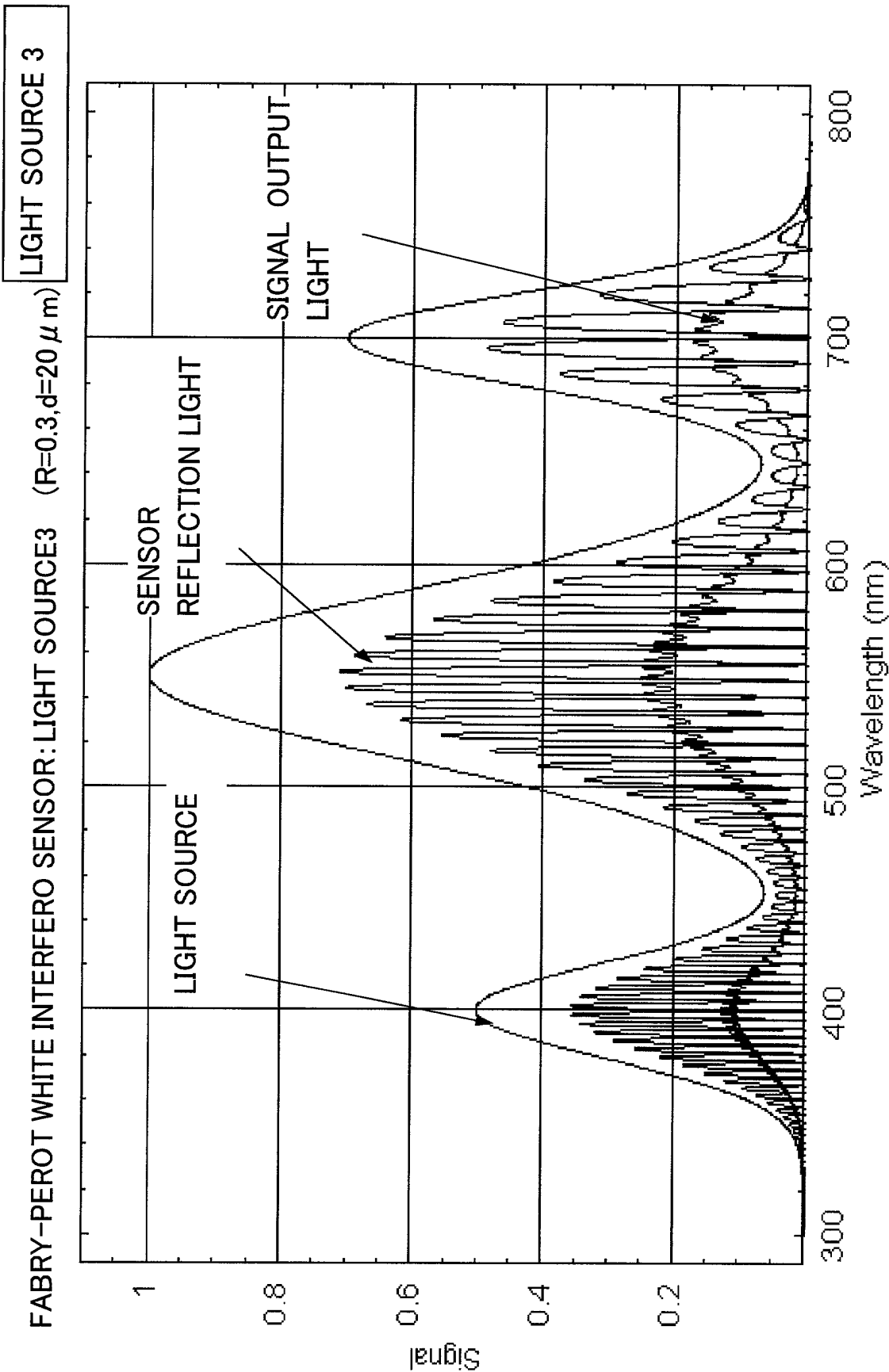


FIG. 36D

FABRY-PEROT WHITE INTERFERO SENSOR: LIGHT SOURCE4 ($R=0.3, d=20 \mu m$)

LIGHT SOURCE 4

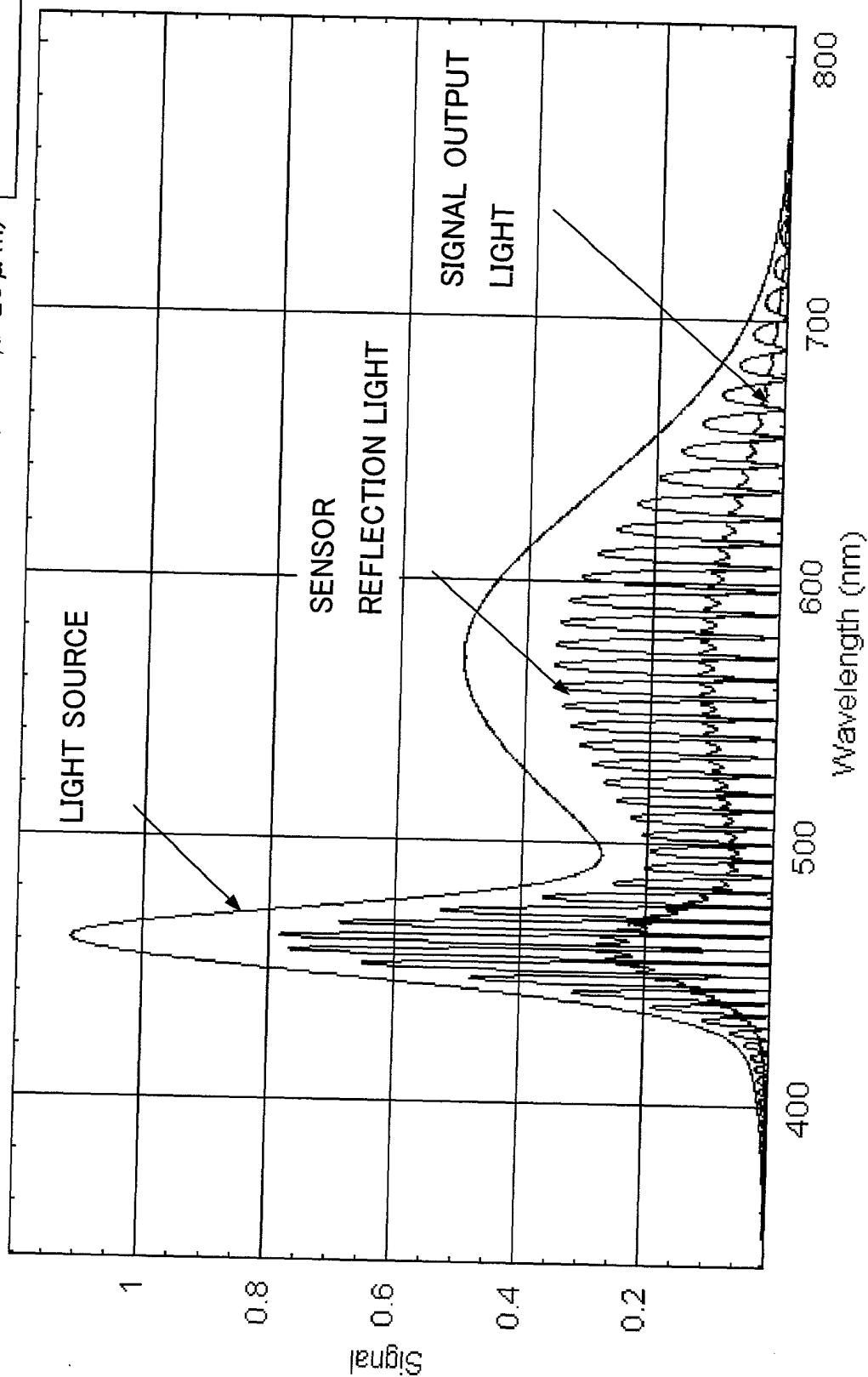


FIG. 37

OUTPUT SIGNAL COMPARISON SIMULATION WITH LIGHT SOURCE
HAVING FOUR DIFFERENT SPECTRUM DISTRIBUTIONS

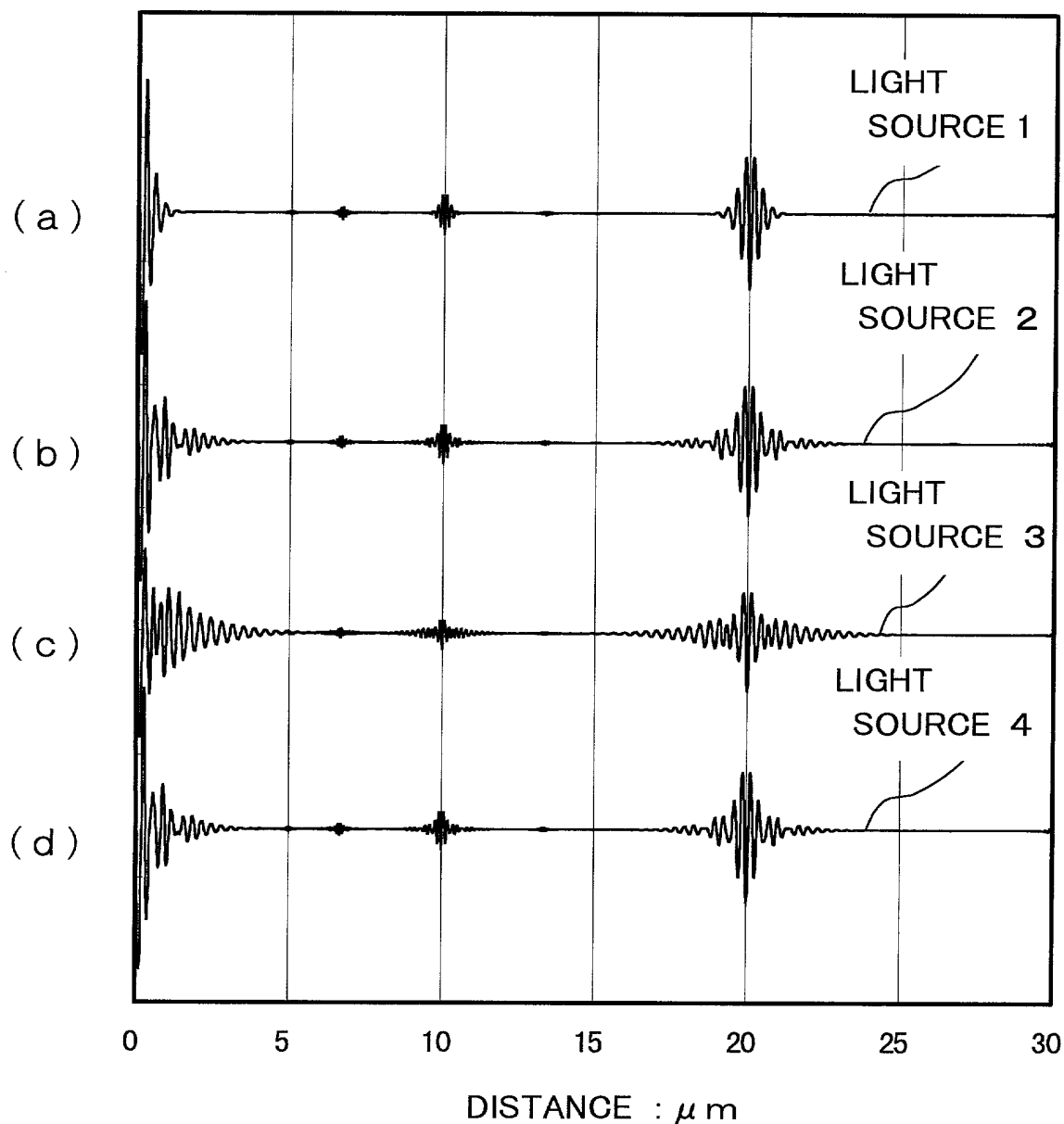


FIG. 38

OUTPUT SIGNAL COMPARISON SIMULATION WITH LIGHT SOURCE
HAVING FOUR DIFFERENT SPECTRUM DISTRIBUTIONS

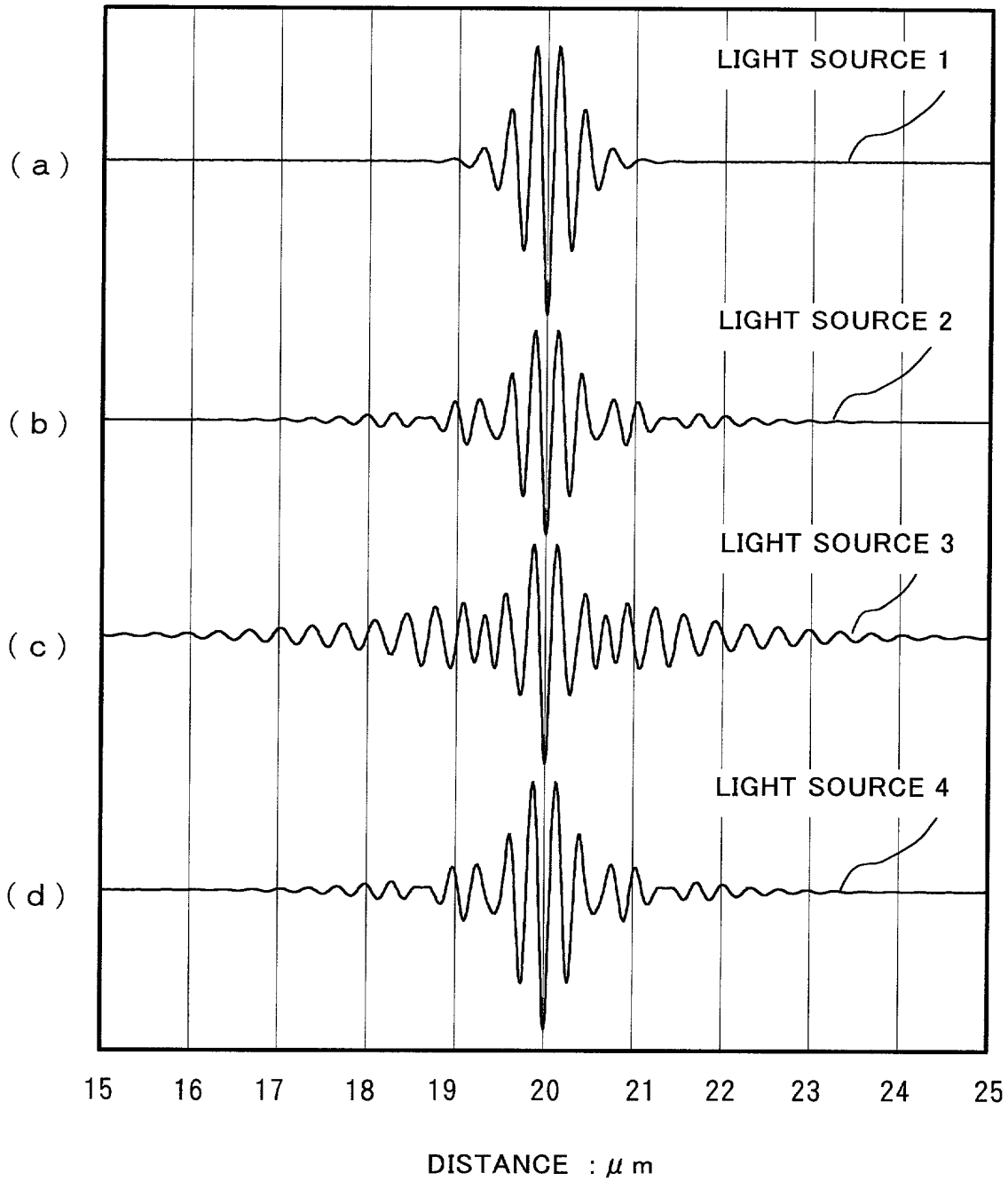
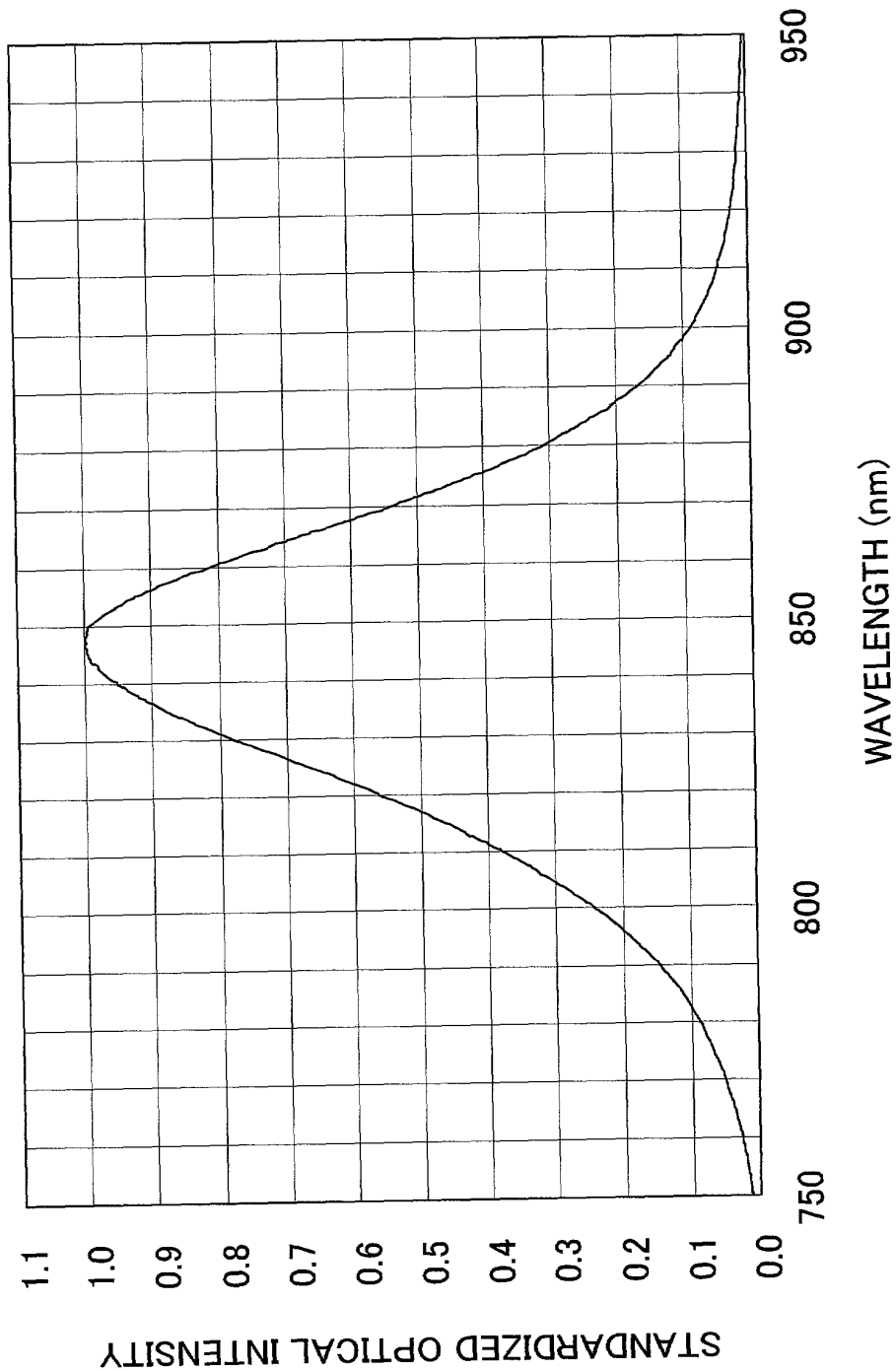


FIG. 39A



LED LIGHT SOURCE SPECTRUM COMPARISON

FIG. 39B

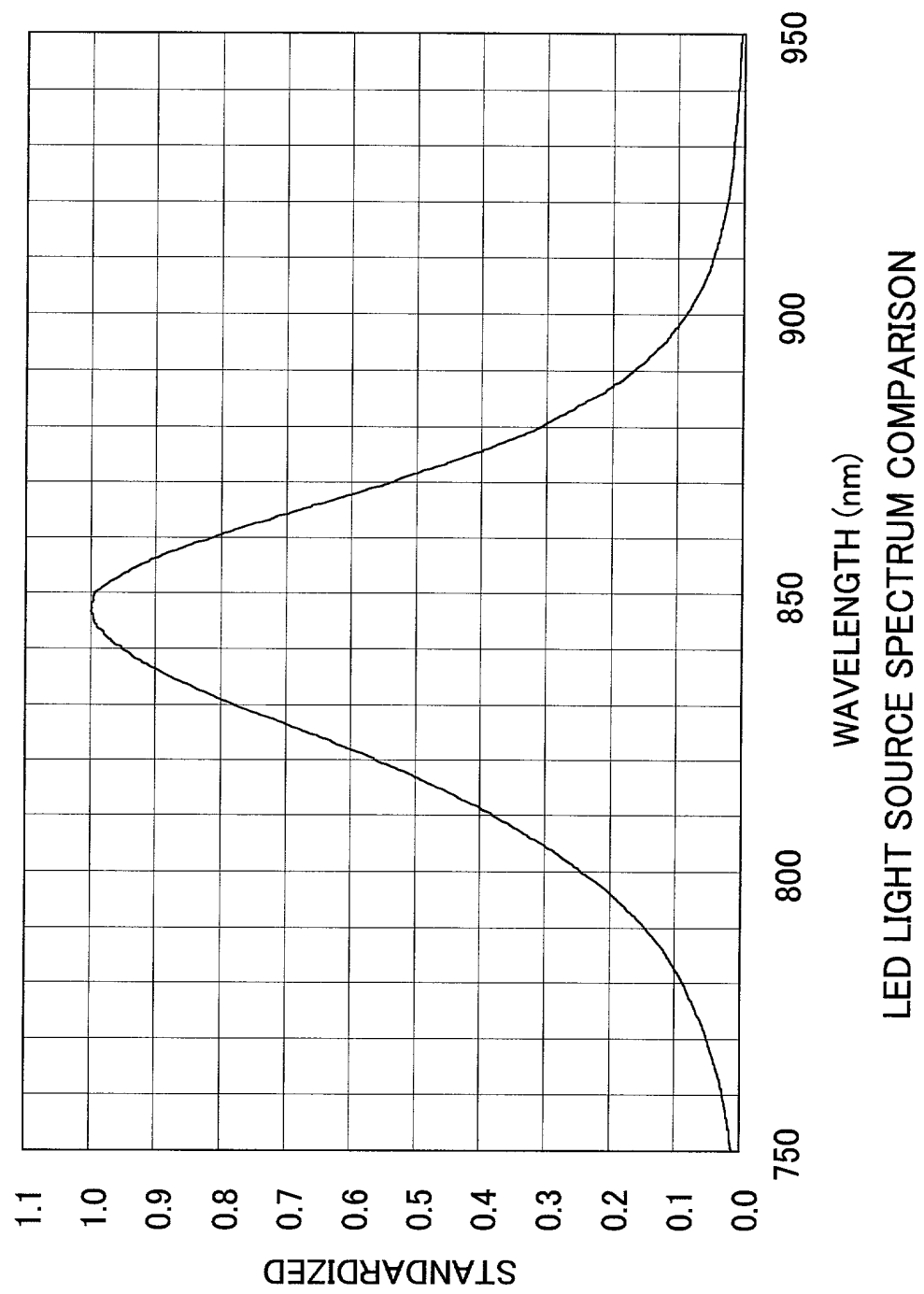
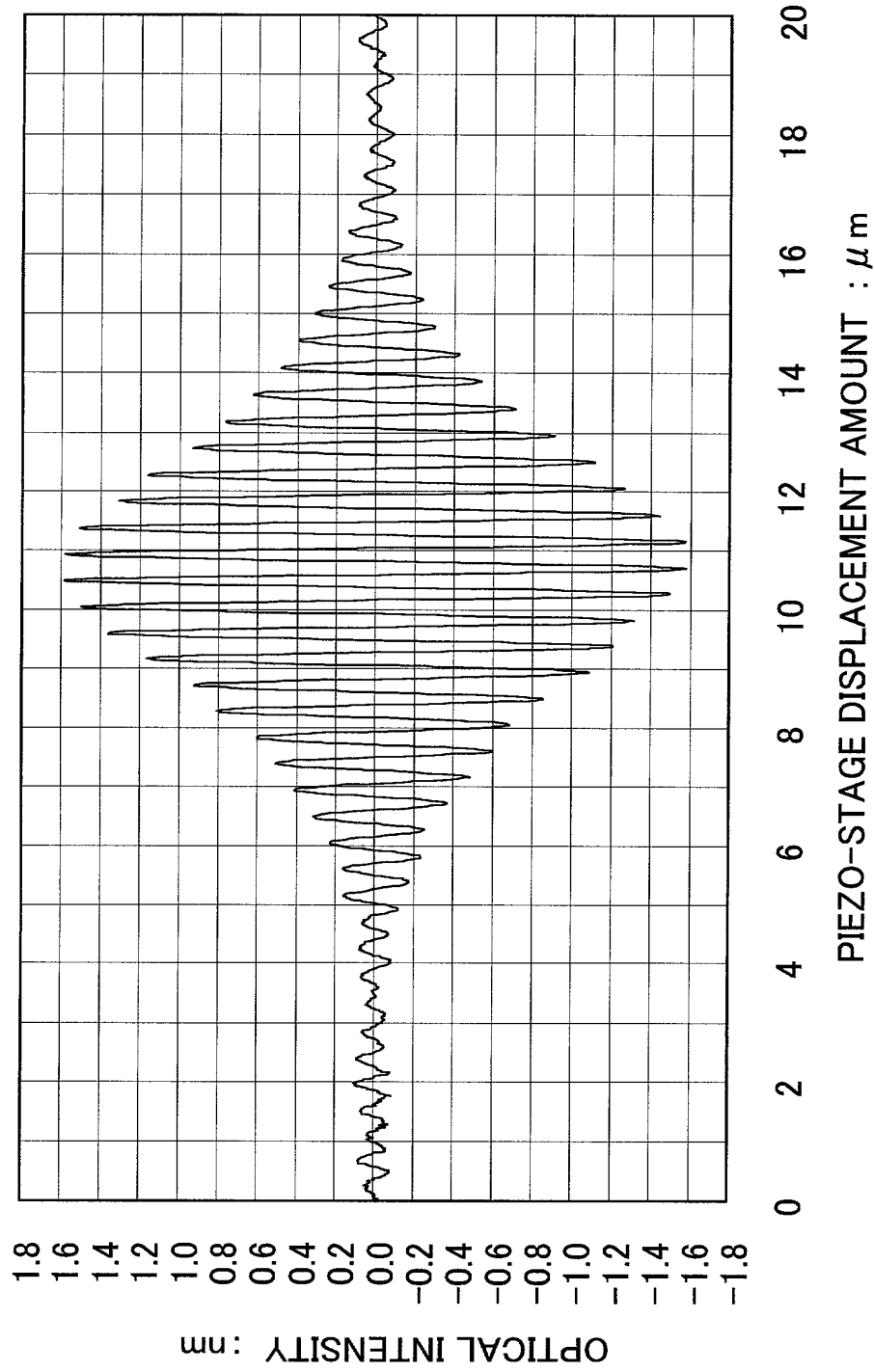
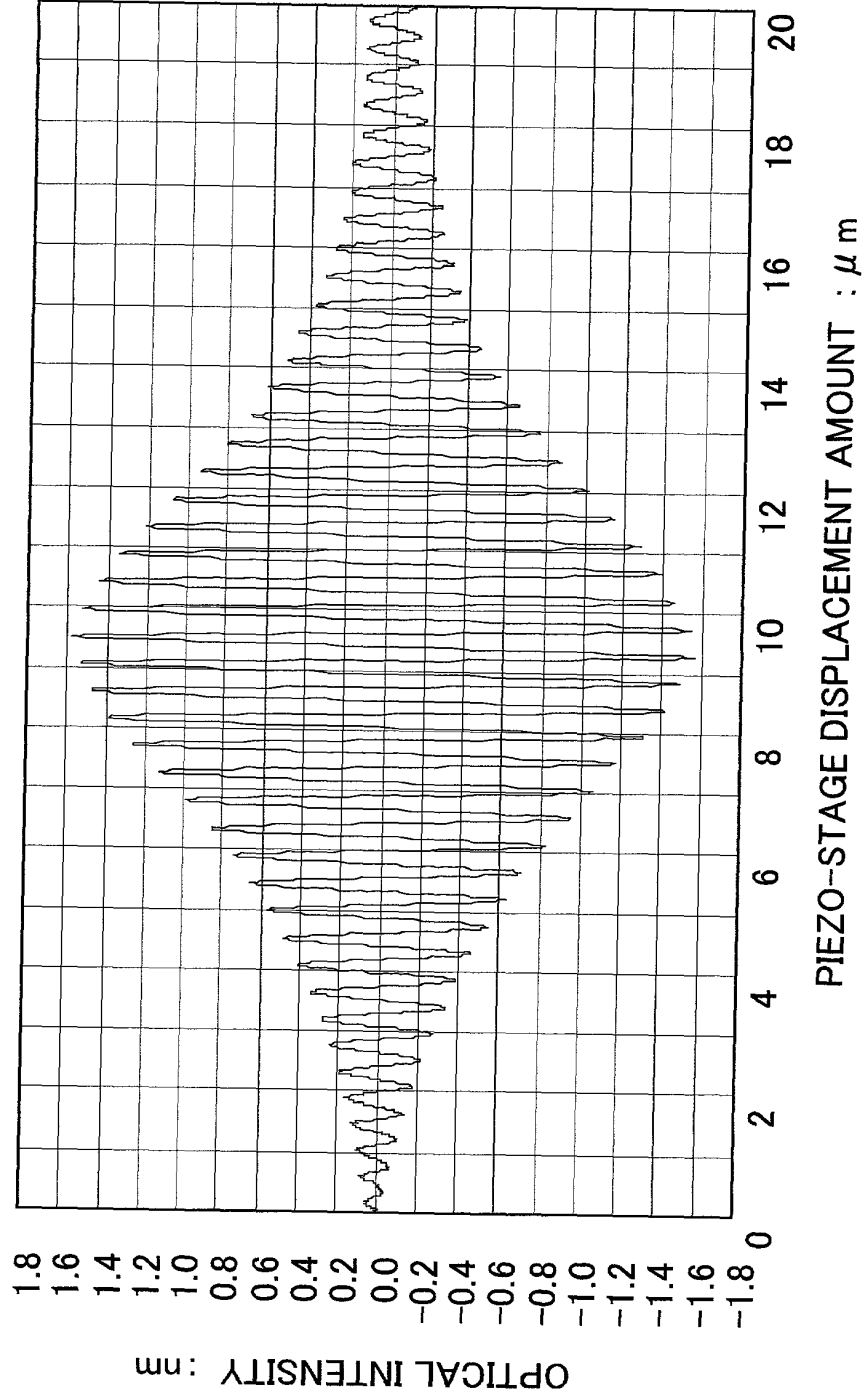


FIG. 40A



LED LIGHT SOURCE : OPTICAL CROSS-CORRELATION SIGNAL COMPARISON

FIG. 40B



LED LIGHT SOURCE : OPTICAL CROSS-CORRELATION SIGNAL COMPARISON